

In presenting this dissertation as a partial fulfillment of the requirements for an advanced degree from the Georgia Institute of Technology, I agree that the library of the Institution shall make it available for inspection and circulation in accordance with its regulations governing material of this type.

I agree that permission to copy from, or to publish from this dissertation may be granted by the professor under whose direction it was written, or, in his absence, by the Dean of the Graduate Division when such copying or publication is solely for scholarly purposes and does not involve potential financial gain.

It is understood that any copying from, or publication of this dissertation which involves potential financial gain will not be allowed without written permission.

James O. ...

THE EXPERIENCE IN THE PLANNING AND BUILDING
OF NEW TOWNS, AND ITS APPLICATION TO BRAZIL'S
NEW CAPITAL CITY

A THESIS

Presented to the
Faculty of the Graduate Division
Georgia Institute of Technology

In Partial Fulfillment
of the Requirements for the Degree of
Master of City Planning

by
Flávio José Magalhães Villaça

May 1958

52
127

THE EXPERIENCE IN THE PLANNING AND BUILDING
OF NEW TOWNS, AND ITS APPLICATION TO BRAZIL'S
NEW CAPITAL CITY

Approved: *[Signature]*
[Signature]
[Signature]

Date approved by Chairman: *May 31, 1958*

ACKNOWLEDGMENTS

The author wishes to express his deep gratitude to the União Cultural Brasil-Estados Unidos, to the City of São Paulo Government, to the Institute of International Education, to Mr. Kendall Weisiger and the Rotary Educational Foundation, and to Professor Howard K. Menhinick, whose cooperation has made possible his memorable visit to the United States of America.

The author gratefully acknowledges the help he received from his family and friends in Brazil.

The valuable assistance, suggestions and criticisms of Professors Howard K. Menhinick, Malcolm G. Little and Dr. Robert Lorch during the preparation of this thesis are greatly appreciated.

Finally, I wish to thank Miss Francis Kaiser for her help in locating appropriate research material.

TABLE OF CONTENTS

	Page
ACKNOWLEDGMENTS	ii
ABSTRACT	v
CHAPTER	
I. INTRODUCTION	1
II. BACKGROUND INFORMATION ABOUT BRAZIL AND ITS NATIONAL CAPITAL	6
Brazil	6
History	6
Political Organization	9
Geography	11
Population	13
Economy	15
Urbanization	17
The West Central Region	19
Brasilia: Brazil's New National Capital	25
Historical Background of the Idea of Moving Brazil's Capital City	25
Reasons for Moving Brazil's Capital City	32
Summary Review	39
III. BRASILIA UP TO NOW	42
Introduction	42
The Commission for Planning, Building and Moving the Federal Capital	43
The Contest for Brasilia's Plan	46
The Winning Plan	51
The Agency that is Administering Brasilia's Construction Works	54
Financial and Land Policies	59
Cooperation Between NOVACAP and other Governmental Agencies	61
Construction Works	62
Population	65

IV.	THE EXPERIENCE IN THE PLANNING AND CONSTRUCTION OF NEW TOWNS: ITS APPLICATION TO BRASILIA	67
	Introduction	67
	The Concept of New Town	67
	Steps that Precede the Construction of a New Town	71
	The Motivation for the New Town: First Decisions	71
	Site Selection	77
	Procedures for Selecting the City's Plan: Contests	80
	Brasilia's Plan	85
	Administration of Construction Works and Planning	94
	Suitable Agencies to Administer Construction and Planning	94
	Agency's Internal Organization	108
	Financial and Land Policies	110
	Long Range Planning	117
	Initial Stage of Construction	122
V.	CONCLUSIONS AND RECOMMENDATIONS	127
	BIBLIOGRAPHY	131

ABSTRACT

The purpose of this study was to make an investigation of the aspects in which the planning and construction of Brazil's New Capital City could profit from the experience in the planning and construction of other important New Towns. When studying significant examples of New Towns, the author tried to identify the important problems that these towns shared in common and the possibilities of occurrence of the same problems in Brazil's New Capital. Using the knowledge thus acquired, the author analyzed and criticized the planning and construction of Brazil's New Federal Capital.

A first step in accomplishing the purpose of the study was to give the reader a sufficient amount of information about Brazil and the idea of moving its Federal Capital. Since the transfer of the Capital was a problem deeply connected with the development of Brazil, it was thought necessary to familiarize the non-Brazilian reader with Brazil, its history, geography, economy, population, urbanization and so on.

The second phase of the study describes what has been done in the New Capital up to the moment. In this description, emphasis was given to the aspects that Brazil's New Federal Capital shared in common with other New Towns.

The third section discussed those common aspects and, in some important cases, showed how they have occurred and been handled in other New Towns. It analysed the occurrence of the same, or similar aspects in the New Capital of Brazil. The planning and construction of the city was analyzed, and an attempt was made to identify the shortcomings as well as the advantages of the practices that were being applied. The author tried to emphasize the advantageous aspects and to suggest solutions to overcome the shortcomings.

It was sought to investigate what future problems might occur in Brazil's New Capital. Considering the Brazilian reality and the experience in the planning and construction of New Towns, attention was called to the possibility of occurrence of future difficulties. An attempt was made to suggest guiding principles, either to avoid future problems, or to help in solving them.

Finally, the conclusions were presented in the form of a review of the basic points that were brought up throughout this dissertation. Attention was called to some weaknesses of the planning principles that were being applied in Brasilia.

While, the administrative and financial policies that were being adopted seemed reasonably satisfactory, overall planning and planning principles presented several shortcomings.

Considering that the construction of Brasilia is just at the beginning, there is still time to improve the methods

that are being used in the construction and planning of the New Federal Capital of Brazil.

Unquestionably, the study of the experience in the planning and building of New Town has been most helpful in the appraisal of some of the New Capital's problems.

CHAPTER I

INTRODUCTION

Brazil has had little experience in the construction of New Towns and in urban planning in general. The few New Towns that were built in the country have not given to Brazilian planners very much experience. The planning and construction of New Towns was little more than an opening of streets and the erection of some buildings. There has been no comprehensive planning approach and the towns were basically engineering works.

Two New Towns were built in Brazil for the special purpose of becoming State Capitals: Belo Horizonte (Minas Gerais State Capital) and Goiania (Goias State Capital). Belo Horizonte was built at the end of the nineteenth century. Its street plan, with diagonal avenues, reflects the influence of Washington D. C. After a few initial works the city was left to itself and grew as haphazardly as it grew rapidly. Besides becoming the State's political and administrative center, it also became its largest and most industrialized city.

Goiania was dedicated in 1942 and reflects the influence of Clarence Stein's New Towns, specially in the layout of residential areas. Another significant example of a

Brazilian New Town is Volta Redonda, built to house the largest steel mill in the country.

Brazil is now undertaking the gigantic task of building a new National Capital, Brasilia. The New Town is located in the heart of the country, far from the facilities of modern civilization.

Since Brazil has had little experience in the construction of New Towns, Brazilian planners would profit from the study of planning and construction of foreign New Towns. Such study would undoubtedly be useful for the construction of the new Capital.

No matter how great the differences between Brasilia and other New Towns, between Brazil and other countries, and between Brazilian planning principles and foreign planning ideas, the study of foreign New Towns may prove useful. New Towns always have some aspects in common. Of course, all the problems that have occurred in other New Towns will not occur in Brasilia and vice versa. But that does not mean that there will not be common problems.

The method in which foreign experience should be used is a delicate matter. A planner should study the foreign experience to enrich his mind and broaden his views, without an a priori intention of directly applying foreign principles. Such study would mainly teach him what to learn about his own country's planning problems. He would learn what to learn.

This author has attempted to study Brasilia, using the knowledge he has acquired from the study of other New Towns. He has tried to be careful in suggesting the application, in Brasilia, of planning principles adopted in foreign New Towns. In some cases the author has suggested what should be avoided rather than what should be sought.

Only basic problems were investigated. The more one gets into details in the study of a New Town, the more one becomes attached to the town's specific problems, and the fewer the generalizations that can be made. The problems that New Towns share in common are not to be found in details.

A few words about the limitations of this work seem necessary. An academic dissertation on a matter concerning urban planning can very seldom be supported by actual field research. In this respect it differs completely from a dissertation in physics or chemistry for instance. A written work on these sciences can often be supported by the author's direct knowledge and observation of the phenomena involved. He can, himself, reproduce in a laboratory the phenomena he is writing about. In this sense, an academic dissertation in urban planning is purely theoretical, unless its author has intensively practiced in professional life before his academic training. In such case, a dissertation might be written, supported by the author's personal experience and knowledge of the problem (or of a similar problem).

This author has had very limited experience in urban planning. Furthermore, he has never worked on the planning or construction of a New Town. The reader should take this fact in consideration as he reads this work. But he should also bear in mind that the impossibility of reproducing urban phenomena in a laboratory makes personal experiments less important in urban planning than in the physical sciences. Planners have to profit from the experience of others. Consequently, a dissertation such as this one cannot be necessarily invalidated by the author's lack of experience.



FIG. 1

Fig. 1 South America

CHAPTER II

BACKGROUND INFORMATION ABOUT BRAZIL AND ITS NEW NATIONAL CAPITAL

Brazil

History. -- Brazil was discovered by Portuguese navigators in the year 1,500 AD. It remained a Portuguese possession until 1822. In 1808 the Portuguese Royal Family moved to Brazil, fleeing from Napoleon, who had invaded Portugal. Rio de Janeiro became the Capital of the entire Portuguese Empire and Brazil was made a Vice-Kingdom. At that time Prince D. Pedro, heir of the Portuguese throne, was a child. He was raised in Brazil and developed strong feelings for the country. In 1821 the Royal Family returned to Portugal and D. Pedro remained in Brazil as Regent Prince of the Vice-Kingdom. The feelings toward independence were then very strong and the young prince sympathized with them. Fearing the consequences, his father sent for him, but the Prince refused to go back to Portugal. On September 7, 1822 he proclaimed Brazil's independence. Very few Portuguese troops turned against him, so that there was no war between Brazil and Portugal. He became Brazil's first Emperor, using the title of D. Pedro I. The first constitution was written in 1824, and is usually referred to as the Empire Constitution. According to this charter, Brazil was a constitutional monarchy. But the Emperor was more inclined toward an absolute monarchy, then prevailing in Europe, than to a

constitutional monarchy that Brazilians wanted. He soon became very unpopular, and at the same time more worried about his Portuguese throne than about his Brazilian one. In 1831 he abdicated in favor of his son, then only five years old, and went to Portugal.

According to the Constitution, the new Emperor could be crowned only when he reached majority, i.e. at eighteen. Brazil was then governed by Regents elected by Parliament. The young prince possessed outstanding traits of character and intelligence. Pretty soon people started thinking that his majority should be anticipated. When he was fourteen, Parliament sent a commission to find out whether he was willing to take over the government. He gave this simple and positive answer: "Yes, and now." The teen-age Emperor was crowned soon afterwards, using the title of D. Pedro II. This boy turned out to be one of the most outstanding personalities in Brazilian history and one of the most famous men of his time. He visited the United States and frequently went to Europe. He developed strong friendship ties with intellectuals and inventors of that time, such as Henry W. Longfellow, Alexander G. Bell, Victor Hugo and others. As an Emperor he was the opposite of his father. He did not consider himself entitled to be the unquestionable authority of the country, and in his heart he was a liberal republican. D. Pedro II ruled Brazil for forty-nine years and

earned the respect and admiration of his people during his long, prosperous and highly democratic reign.

By the end of the nineteenth century republican ideas began to gain strength in Brazil. The people admired D. Pedro II, but not monarchy as a form of government. In the New World, Brazil was the only monarchy, although, according to an Argentine politician, the Empire of Brazil was much more democratic than any of the Latin American Republics. The Emperor was at the end of his life and the people started fearing for the future. The throne would be occupied by his daughter. The heiress was married to a French nobleman who was extremely unpopular, and Brazilians feared for his influence upon his wife. In 1888 slavery was abolished and monarchy became unpopular among big farmers.

There was a generalized idea that the republic should be proclaimed after the Emperor's death, but the events just described precipitated the advent of the new regime. The republic was peacefully proclaimed in 1889 and D. Pedro II did not put up the slightest opposition.

A provisional government took office to write a new constitution and call for national elections. A federative and presidential republic was established. From 1891 to 1930, presidents were regularly elected each four years. In 1930, Getulio Vargas headed a revolutionary movement and took over the government as a Dictator. Until 1937 he gave his government the façade of a democracy, but after that year he did

not try to pretend there was a Congress or a Constitution; they did not exist at all. In 1954 a bloodless coup overthrew Vargas, who did not resist. Here again the opposition was against a form of government and not against a man. No action whatsoever was taken against the ex-Dictator.

In 1946 a new Constitution was written and Brazil resumed its democratic governmental practices. Vargas proved to be a very popular man and was legally elected President in 1950. The present President, Mr. Jucelino Kubitchek de Oliveira, was elected in 1955 and will hold office until 1960.

Political organization.-- "Several Latin American States, Mexico, Venezuela, Colombia, Argentina and Brazil have had, and most of them still have, the outward forms of federal government; but the two last named are the only ones that approach the federal spirit or the federal methods of action as shown in the other governments of the world."¹

The United States of Brazil (that is the country's official name) comprises 20 states, 5 territories and 1 federal district. States and Territories are divided into municipios.

The 1946 Constitution is not basically different from the preceding ones. It provides for the separation of powers

¹The Encyclopedia Americana, Americana Corporation, 1956 ed., Vol. XI, p. 82d.



Fig. 2, Brazil: States, Territories and Main Cities

among the three branches: legislative, judiciary and executive. The legislative power is vested in the National Congress which consists of two houses: the Senate (composed of three representatives of each state and federal district, who serve for an eight-year term) and the Chamber of Deputies (which has proportional representation from the states and territories according to population, with members serving four-year terms).

The executive power is exercised by the President, who is elected for a five-year term and may not succeed himself.

The federal judiciary consists of the Federal Supreme Court of eleven members appointed by the President with the approval of the Senate; the Federal Court of Appeals of nine members; the Attorney General of the Republic; military electoral and labor tribunals.

Geography.-- A regional classification suggested by the Brazilian Institute of Geography and Statistics, and officially adopted, divides Brazil into five regions. The main purpose of this simplified division is to facilitate the presentation of statistical data and comparison among the different parts of the country. States and territories are grouped according to their geographic, economic and other similarities. Political boundaries are respected. One of the shortcomings of this classification is that it splits the country's most industrialized area into two parts; one portion of the area

is located in the Eastern Region and the other in the Southern Region.

The Northern Region has the largest area and the smallest population. It comprises the vast jungle-covered plains of the Amazon River Basin.

The Northeastern Region is mostly semi-arid and has a very hot climate. Its plains have a semi-desert character and are covered by sparse vegetation. This Region is subject to devastating droughts at irregular intervals.

The Eastern Region includes part of Brazil's so called "Industrial Triangle" which is formed by the cities of Belo Horizonte, São Paulo and Rio de Janeiro. This Region, which is very rich in minerals, is crossed by the 1,700 mile-long navigable São Francisco River; its basin is now being developed. This is the largest river-basin development program under way in Latin America. The program includes navigation, irrigation, production of energy and industrial development.

The Southern Region is the most important from an economic point of view. It is the country's most industrialized region and produces about 60 per cent of the coffee grown in Brazil.

Within the West Central Region lies most of the Brazilian Central Plateau. Between 1940 and 1950 this Region had the highest rate of population growth. This Region will be analyzed in more detail in another section of this dissertation, since the New Federal District is located here.

Population.-- According to the 1950 census, Brazil's population was 52,645,479 inhabitants. The estimated population in 1957 was 62,000,000. The following table shows the regional distribution of population in 1950.

Table 1. Area and Population Data by Regions

Region	Area sq. miles	Population		Density Persons per sq. mile
		1950	Increase 1940-50 Percentage	
Northern	1,168,000	1,473,850	27.78	1.4
Northeastern	373,000	12,652,624	26.86	37.8
Eastern	487,000	19,162,745	22.63	39.4
Southern	313,000	17,183,594	33.05	55.6
WEST CENTRAL	728,000	1,763,191	41.37	2.4
Brazil	3,270,000	52,645,479	27.67	16.1

According to the 1950 census, 61.7 per cent of the population was white, 26.5 mulatto, 11.0 per cent pure negro. Other races comprised 0.8 per cent of the population.

Between 1851 and 1950 approximately 4,800,000 immigrants entered Brazil. Out of these, 1,540,000 were Italians, 1,480,000 Portuguese, 600,000 Spaniards, 230,000 Germans, and 190,000 were Japanese. Between 1950 and 1955 immigrants entering the country numbered 227,000. By far the largest proportion of these immigrants went to the Southern Region.

Internal migrations are particularly significant, both from one rural area to another and from rural areas to cities.

In 1950 there were 45,429 savage Indians in Brazil.

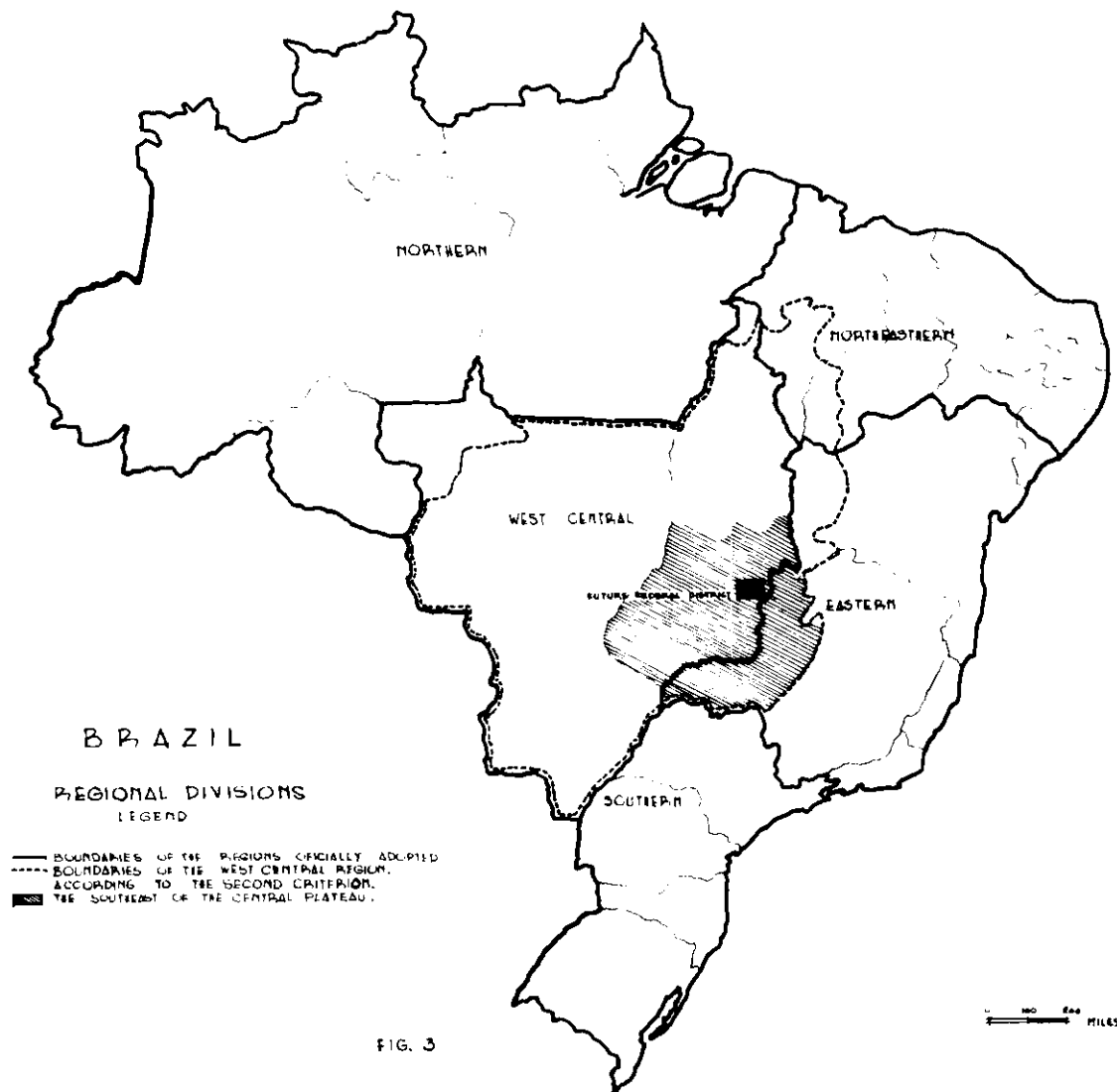


Fig 3., Brazil: Regional Division

Economy.-- Brazilian economy is still based on agriculture, despite the country's rapid industrialization. Between 1946 and 1956, while population increased 21 per cent, farm output for use in Brazil increased 42 per cent. Food imports (mainly wheat) amounted to some 15 per cent of total imports. Wheat is being grown successfully in the Central Plateau; its production trebled between 1948-49 and 1956-57, but is still behind consumption. Continuous efforts have been made to diversify crops, avoiding excessive dependence on coffee.

Distribution of industry is even more unbalanced than the distribution of population, as can be seen from the following table.

Table 2. Distribution of Industry

Unit of the Federation	Number of Industrial Establishments	Number of Industrial Workers	Value of Production (Percent of National Total)	Population (Percent of National Total)
São Paulo (State)	24,519	487,352	46.7	17.5
Federal District	5,681	164,907	14.9	4.6
Rio G. do Sul (State)	13,361	108,394	8.6	8.0
Minas Gerais (State)	11,346	119,370	7.1	15.0
Rio de Janeiro (State)	3,856	78,306	6.2	4.4

Post-war industrial development has been remarkable. A Five-Year National Development Plan calls for an increase, between 1955 and 1960, in the production of electric power, motor vehicles, oil, steel and wheat, as well as for the

construction and modernization of transportation facilities. Brazil expects to manufacture 200,000 motor vehicles in 1960. This figure will probably be dwarfed by the production of the following years.

Unlike other Latin American countries, Brazil started oil exploration not more than six years ago. Production averaged 8,173 barrels a day in the first half of 1956, 20,000 barrels a day in December, 1956, and 41,000 in December 1957. Despite this increase, oil production is still insufficient to meet the demand.

Installed electric-power capacity was 2,800,000 KW in 1954 and 4,000,000 in 1957.

In three years (1955-1957) 655 million dollars were invested in Brazil by foreign countries. Investments were made for the production of motor vehicles, ships, locomotives, steel and so on.²

Table No. 3 summarizes the output of a few basic items in the most important Latin American countries.

²For a good summary of Brazil's present economic conditions see: The Chemical Coin Exchange Bank, International Economic Survey, New York, No. 113, February 1957.

Table 3. Latin America: Production of Steel
Coal, Oil and Electric Power³

Country	1,000 of Tons		1,000 KW	1,000 cubic
	Steel ingots Pig iron Rolled products	Coal	Installed Capacity of Electric power Plants	Meters Oil (a)
Argentina	847	151	2,069	4,850
Brazil	3,255	1,478	3,065	321
Chile	815	2,308	958	410
Colombia	211	1,800	520	6,460
Mexico	1,605	1,343	1,930	14,525
Venezuela	-	30	500	125,183

(a) Including the production of natural petrol except in Chile and Mexico.

Urbanization.-- During the past few decades the process of urbanization in Latin America began to accelerate. Rates of urban growth are among the highest in the world. This is particularly true for Brazil, where growth of cities has been impressive, both in absolute terms and in rate.

One fact that has impressed Latin America's observers is that its urbanization has largely come from non-industrial causes and that Latin America is over-urbanized in relation

³United Nations, Economic Survey of Latin America, New York, United Nations, 1955, pp. 67, 83, 87

to its level of economic development. "In Latin American countries, one third or more of the urban population is concentrated in a single large city which with one or two exceptions is also the National Capital."⁴

The above observation does not apply to Brazil for the following reasons: (a) Brazil is one of the least urbanized countries in Latin America, on the basis of the proportion of the population living in cities. According to the 1950 census, 63.8 per cent of the Brazilian population was rural, 25.0 per cent was urban, and 11.2 per cent was suburban. (b) Brazil's capital city is neither the largest nor the most important city from an economic point of view. (c) Rio de Janeiro's population does not represent a large proportion of Brazil's urban population.

Despite the small proportion of urban population, Brazil has more cities with more than 100,000 population than any other country in the Americas, except the United States.

⁴United Nations, Report on the World Social Situation, New York, United Nations, 1957, p. 173.

In 1957 there were in Brazil five cities with more than half a million population, as follows:⁵

Table 4. Brazil: Population of Main Cities

City Proper	Growth Between 1940-50 Percentage	Population	
		1950	1957
Rio de Janeiro	36.5	2,335,931	2,940,045
Sao Paulo	61.1	2,041,716	3,140,504
Recife	60.1	522,466	690,710
S. Salvador	34.2	395,964	523,411
Porto Alegre	48.9	381,964	503,389

All the above cities, except Rio de Janeiro, are State Capitals. As can be seen, these cities (with one exception) are growing faster than the National Capital. They are also regional capitals, with their own spheres of influence.

Belo Horizonte, a New Town and Minas Gerais State Capital, is expected to reach the half a million mark by the beginning of 1958; this city had a 90 per cent increase in population between 1940 and 1950.

The West Central Region.-- For more specialized studies, the Brazilian Institute of Geography and Statistics adopted a

⁵These figures were released to the press by the Directory of Documentation and Public Relations of the National Council of Statistics. They are published in a booklet called Flagrantes Brasileiros, Rio de Janeiro, The Council, 1957, p. 7. The same publication states that in 1957 there were in Brazil 16 state capitals with more than 100,000 population. The publication says nothing about cities other than state capitals.

regional division a little different from the one already presented here. Under this new division, regional similarities are more respected than state boundaries. Since the West Central Region will now be studied in more detail, the new boundaries will be used. (see fig. 3). Originally the West Central Region included only the states of Mato Grosso and Goias. The new boundaries include also parts of the States of Minas Gerais, Bahia, Maranhão and Piauí. From now on, this will be the region referred to as the West Central Region.

The reader should always have in mind an idea of scale when dealing with this region, as well as with its sub-regions, that will be described later. The original region, comprising only the States of Goias and Mato Grosso, had an area of 728,000 square miles.

The West Central Region is, under several points of view, an area of transition between the equatorial jungles to the north, the arid areas to the east, and the temperate areas to the south. The Brazilian Central Plateau occupies almost the whole Region. The Plateau, which has its highest altitudes in Minas Gerais State, spreads out over Central Brazil. Altitudes get lower and lower as one approaches the Amazon River plains. Topography is predominantly flat or with rolling hills and broad valleys. Most of the land is covered with open fields, pastures and scattered shrubbery. Forests are found in a few spots, and along the river valleys. Only two seasons can be

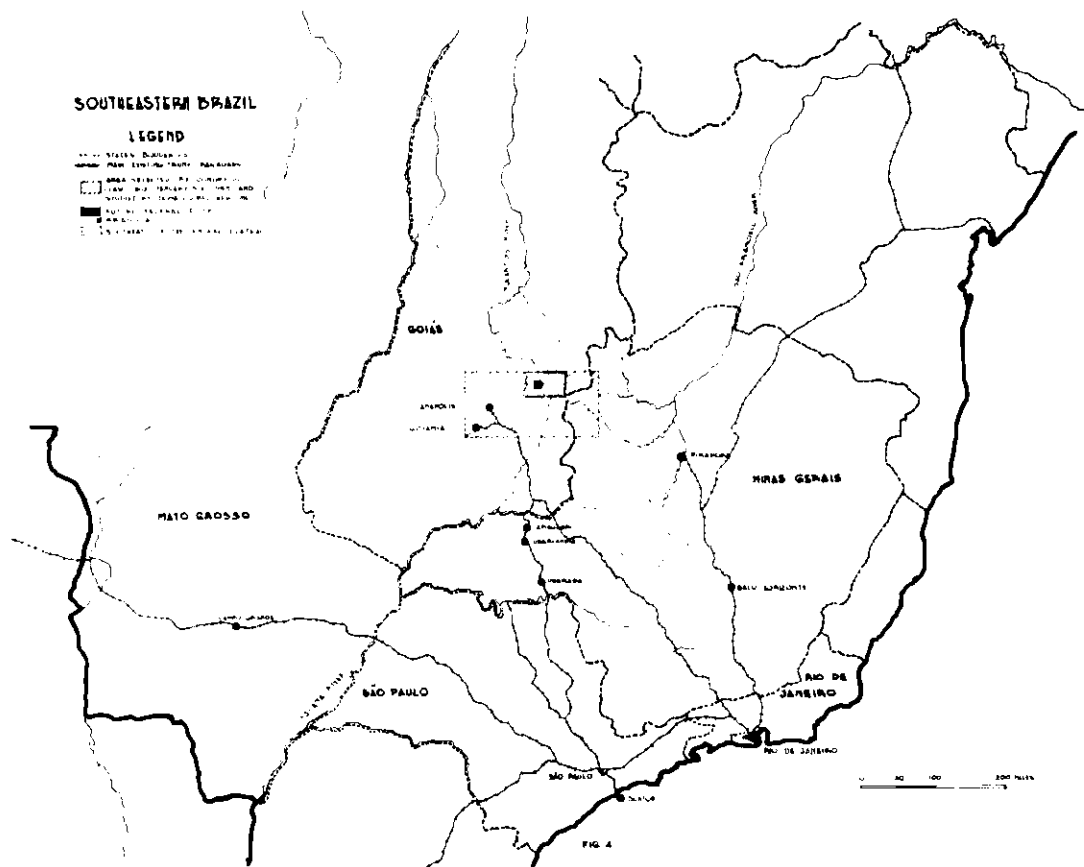


Fig. 4, Southeastern Brazil

distinguished here: the rainy season, that may be called summer and the dry season that may be called winter. The Region is penetrated by some of the largest river basins in South America.

The most important economic activity in the West Central Region is livestock production. However, cattle are raised almost without any care, left by themselves on the vast plains. The Region supplies a considerable proportion of the low-cost beef consumed in the large urban centers. Crop production is also an important economic activity; major crops are rice, corn, coffee and beans.

Transportation facilities are few and primitive, and they use obsolete equipment. Only two railroads penetrate the Region, not further than its southern part. The first reached the town of Campo Grande in 1914 and the second reached the town of Anapolis in 1935. Since then these towns have become main regional trade centers: the West Central Region has developed a reasonably high productivity, but at the expense of a tremendous waste of resources, burned forests and depleted soils. Increased production has not been accompanied by improvements in agricultural practices; progress has been noticeable, but not in depth.

The West Central Region is subdivided into four subregions as follows:

- (a) The North of Mato Grosso
- (b) The North and Northeast of the Central Plateau

(c) The South of Mato Grosso

(d) The Southeast of the Central Plateau

The two northern sub-regions are practically unpopulated. Population and economic activity are concentrated in the two southern sub-regions, which are typical frontier areas. Here are located a few towns which became trade centers connecting the West Central Region with the large urban centers of the South and East. Besides the two towns already mentioned (Campo Grande and Anapolis) other important centers are the towns of Araguari, Uberaba and Uberlândia, which have a population between 20,000 and 50,000.

The New Federal District is located in the Southeast of the Central Plateau. In 1957 approximately two million people lived in this sub-region, which is a little larger than Florida, Georgia and Alabama put together. Eighty-five per cent of this population is rural.

This sub-region has the highest altitudes (up to 4,000 feet above the sea level) to be found in the West Central Region. The climate, referred to as "perpetual spring" is excellent. Summer average temperatures vary between 70 and 82 degrees and winter average temperatures, between 50 and 70 degrees.

Due to the rapid development of its agriculture, this region is constantly attracting rural population from other areas. Although soils are not of first class, topography is suitable for the use of mechanized equipment; but these, as well as

fertilizers, are almost unknown here. With better agricultural practices, this area will be able to develop a much higher and better productivity.

Probably the most important characteristic of the Southeast of the Central Plateau, from the national point of view, is its central location in relation to important river basins. Brazil has about 24,000 miles of inland waterways, most of which are practically unused and unimproved with locks, dams or canals. When fully utilized, such waterways will be a factor of enormous importance in the development of Brazil. The Southeast of the Central Plateau is penetrated by rivers of the Amazon River Basin, Prata River Basin and São Francisco River Basin. The following table presents a few important data about these basins.⁶

Table 5. Brazil: Main River Basins

Basin	Area covered Sq. miles	Hydroelectric Potential H.P.	Navigable Rivers Miles
Amazon	1,840,000	4,395,900	11,420
São Francisco	244,000	1,573,300	1,700
Prata	557,000	10,763,300	3,420

⁶Based on data presented in Brasil, Rio de Janeiro, Ministério das Relações Exteriores, 1955, p. 38.

Brasília: Brazil's New National Capital

Historical background of the idea of moving Brazil's Capital City.-- There is no complete agreement about the first statement that was made about moving Brazil's Capital City to the interior of the country. However, the idea was being considered at the end of the eighteenth century. At that time, the Capital was São Salvador, on the northeastern coast.

Just after independence, the matter was brought to the General Parliament of the Empire of Brazil by one of the independence heroes. The Southeast of the Central Plateau was at that time considered the ideal location for the New Capital. In 1877 the Viscount of Porto Seguro, an outstanding diplomat and historian, was enthusiastic about the region. In a letter to the Minister of Agriculture he referred to the Central Plateau as joining the three big river basins of the Empire and as the only region related to the whole country. The Viscount believed that Brazil's New Capital should be located in this area.

In 1891, the first Republican Constitution included the following paragraph:

It shall belong to the Federal Government, in the Central plateau of the Republic, an area of 14,400 square kilometers (5,600 square miles) which boundaries shall be properly established and where shall be located the Future Federal Capital. After the Federal Capital is transferred, the present Federal District shall become a State.⁷

⁷Quoted in: Silveira, Peixoto da, A Nova Capital, Rio de Janeiro, Irmãos Pongetti Editores, 1957, p. 289.

In 1892 the President asked the Minister of Transport and Public works to appoint a "Commission to Explore the Central Plateau of Brazil". This Commission, headed by Luiz Cruls, included two astronomers, one physician, one expert in public health, one pharmacist, one geologist, one botanist and several assistants. This group left Rio de Janeiro in 1892 and worked in Goias State for twenty-six months. In 1894 the Cruls Commission presented its report. The Commission had selected a rectangular site, bounded by parallels and meridians, with the required area of 14,400 square kilometers.

Luiz Cruls -- himself a Belgian -- had recorded temperatures as low as 28.4 degrees, and was quite enthusiastic about the region's climate. "In short, the area defined enjoys an extremely healthy climate, where the European immigrant does not need adaptation, since he will find climatic conditions similar to those found in the most healthful regions of the temperate areas in Europe."⁸

Since then, the "Cruls Rectangle" is shown on most maps of Brazil, bearing the inscription "Future Federal District".

However, the Cruls report was otherwise soon forgotten, and no further action was taken. The idea of moving the Capital survived principally because of a few speeches made in Congress.

⁸Cruls, Luiz, Planalto Central do Brazil, Livraria José Olympio Editora, 3rd ed. Rio de Janeiro 1957, p. 108.

The 1946 Constitution was made more positive in its provisions concerning the New Capital; it has definitely contributed to the materialization of this old idea.

This Constitution includes in its Transitory Provisions the following sections:

Article 4-- The National Capital shall be transferred to the Central Plateau of the country.

Paragraph 1. After the enactment of this Constitution the President shall, within sixty days, appoint a Commission of experts of recognized capacity, to proceed with the studies for the location of the New Capital.

Paragraph 2. The studies referred to in the preceding paragraph shall be presented to the National Congress, which shall decide upon said study in a special law, and shall establish a time limit within which shall be defined the area to be included as property of the Federal Government.

Paragraph 3. After said definition, the National Congress shall decide upon the date for the transfer of the Capital.

Paragraph 4. After this transfer, the present Federal District shall become the Guanabara State.

In November 1946, following the above provisions, the President appointed a "Commission to Study the Location of the New Federal Capital of Brazil". This Commission was headed by General Polli Coelho. Apparently, the studies made by the Cruls Commission were thought to be obsolete, since Brazil, as well as sciences and techniques, had changed much since 1894.

The Coelho Commission decided to study several other areas in the Central Plateau, within and outside Goias State. It came up with two areas: the first one included the Cruls Rectangle; the second was located in the south of Goias State

and included part of Minas Gerais State. The Commission did not recommend either of the two areas, but left it to Congress to decide upon the matter. As a result of this uncertainty, a long time was spent with arguments and discussions. In 1953, after a series of debates in Congress and in the press, Congress passed a special law, selecting the first area, where it defined a rectangle of 52,000 square kilometers (20,300 square miles) within which the actual site for the New Federal District should be located. This was law No. 1,803 of January 5th, 1953, (See fig. 4) which included, among others, the following provisions:

Article 1. The Executive is hereby authorized to carry on, as it thinks best, the studies within the area comprised by parallels $15^{\circ} 30'$ and 17° and meridians W. Gr. $46^{\circ} 30'$, and $49^{\circ} 30'$, for the purpose of locating the New Federal Capital. Said studies shall be completed within three years.

The law lists the basis for such studies as climate, topography, water and energy supply. A city of half a million population should be considered.

Article 2. The site thus selected, whether bounded by natural limits or not, shall have an approximate area of 5,000 square kilometers (about 1,950 square miles); it shall have all the necessary requirements for the construction of the New Capital and shall become property of the Federal Government.

The law states then that the Executive shall order the preparation of permanent studies concerning water supply, location of transportation routes, plans for expropriating the area and so on.

Immediately after this law was passed, the Executive

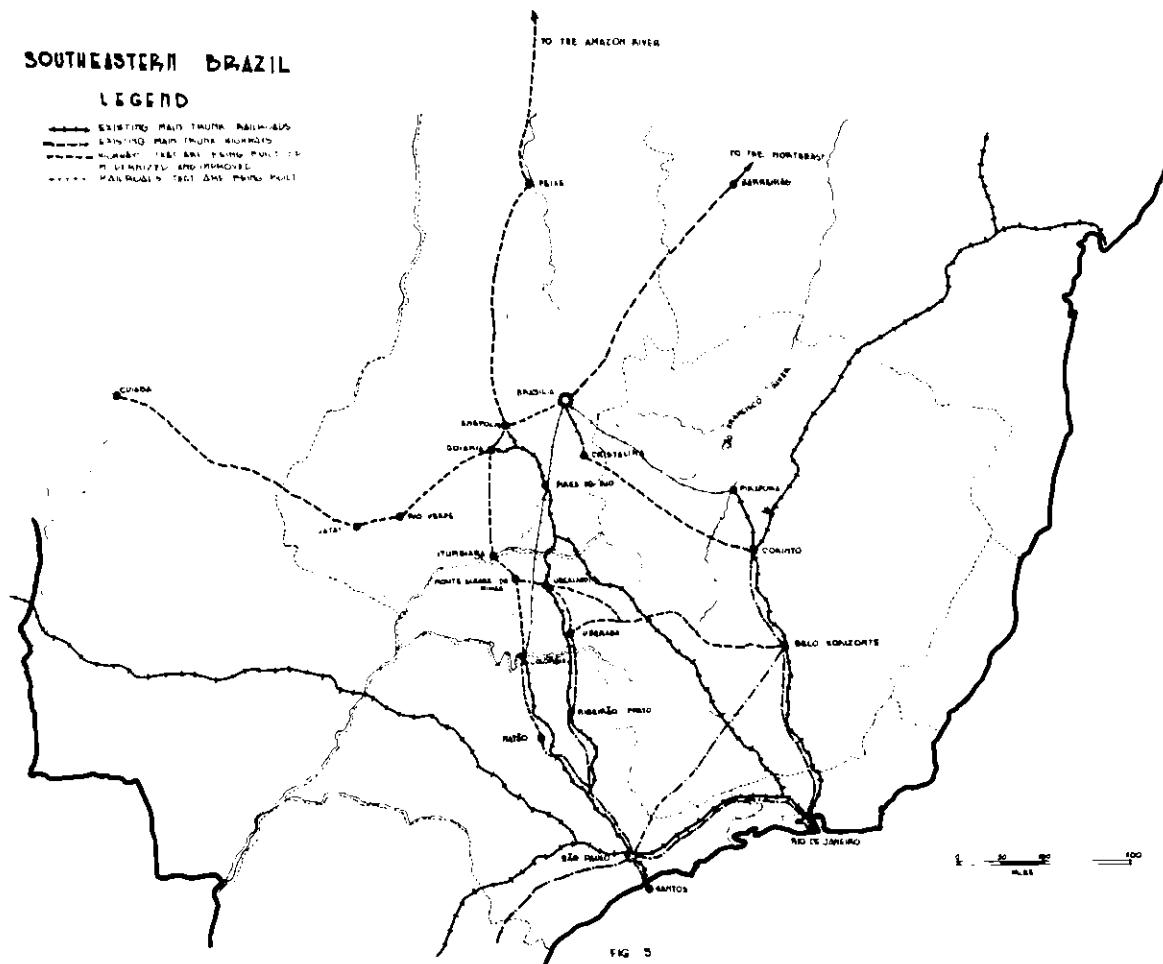


Fig. 5, Southeastern Brazil

appointed a Commission for the Location of the New Capital. Upon recommendation of this Commission, the Brazilian Government signed a contract with Donald J. Belcher Associates, Inc. of Ithaca, N. Y., for the execution of the following work: selection within the area defined by Law 1,803 of five alternate sites of roughly 1,000 square kilometers; each site to be capable of containing a city of approximately half a million population.

- In order to arrive at five alternate sites, studies were to be made of the general area of 52,500 square kilometers at a scale of 1:50,000 as follows:
- a. Uncontrolled Photomosaic.
 - b. Topography; with form lines (not precise contours) contour interval to be 20 meters.
 - c. Geologic formation:
 1. Type and occurrence of rock and outcrops.
 2. Type and occurrence of unconsolidated deposits.
 3. Depth of soil over underlying rock.
 - d. Drainage conditions
 1. Surface
 2. Internal
 - e. Land use and land classification.
 - f. Ground and surface-water resources.
 - g. Engineering features.
 1. Sites for hydro-electric development.
 2. Potential location of airports.
 3. Potential location of highways.
 4. Potential location of railroads.
 5. Construction materials for highways, airports, and buildings, including limestone suitable for cement.

When the five sites were selected, then would begin the second phase of the work, which was to comprise the same studies on the five areas of 1,000 square kilometers as was done on the whole quadrangle except at a scale of 1:25,000 and with much more detail.⁹

⁹Kent, Hollister, Vera Cruz: Brazil's New Federal Capital, unpublished Ph. D. thesis, Cornell University, 1956.

A third phase of the work of the Donald J. Belcher & Associates Inc., was to select the boundaries of the Future Federal District. Once the Commission for the Location of the New Capital had selected one of the five sites, an area of 5,000 square kilometers should be defined around the site selected, to comply with Law No. 1,803.

On a sub-contract basis, a Brazilian concern took about 8,000 aerial photos of the total area. In the short period of ten months, Donald J. Belcher & Associates did an outstanding job. After its work, the Commission for the Location of the Federal Capital selected a site called "Castanho" which was one of the five sites presented. "Thus it was that the site called 'Castanho', the same recommended in the Cruls Report, sixty one years before, became the location of Brazil's new Federal Capital."¹⁰

The main feature of this site is a triangular-shaped dome defined by two rivers as they join to form a third one. The dome reaches an elevation of about 3,600 feet above sea level.

Immediately after the Commission's decision, Goias State Legislature passed a law which declared " ... of public necessity and convenient for the social interest, the area destined to the location of the new Federal Capital ..." ¹¹ for the purpose of expropriation.

¹⁰Op. cit. p. 257

¹¹Goias State Law No. 1,071, May 11, 1955

The Commission for the location of the New Capital was then transformed into the Commission for Planning, Building and Moving the Federal Capital," without change in its membership. One of the important steps taken by this Commission was the organization of a National Contest for a "Pilot Plan" for the New Federal Capital. This Commission was then dissolved and replaced by a Corporation (Companhia Urbanisadora da Nova Capital do Brasil) which started building the city in accordance with the winning plan.

In September, 1957, the National Congress passed a law which included among others, the following statements:

Article 1. In compliance with article 4, paragraph 3 of the Constitution's Transitory Provisions, the Federal Capital shall move into the New Federal District, already defined in the Central Plateau, on April 21, 1960.

Reasons for moving Brazil's Capital City.-- Since the eighteenth century, the idea of moving Brazil's Federal Capital has generated a considerable amount and variety of arguments, both, in favor and against it. There has not been in Brazil a more debated problem than this. During the past five years, as the idea was about to come true, the intensity of the arguments increased considerably. The two wings, those who favorored and those who were against moving the Capital, have debated the problem to its exhaustion.

It is hard to distrust an idea that survived for two hundred years, that has always been favored by outstanding personalities of Brazilian history and by the majority of public

opinion and legislators, and that has been included in different Constitutions. This persistence shows quite clearly that the Brazilian people believe in this idea. This is a logical conclusion if the problem is viewed from the historical point of view. The will of the people and the compliance with a Constitutional provision are reasons that justify, but do not explain, the need for a New Capital.

Throughout the years, some reasons for moving the Capital have changed; some lost their importance and others gained strength. Some decades ago, moving the Capital away from the coast was considered an important defense measure. Today, this motive has lost much of its importance.

The reasons that follow are strongly based on the already called "classical reasons" for moving Brazil's Capital City. All the motives tie in with each other and should not be analyzed separately. This has been one of the weak points in the arguments of those who are against moving the Federal Capital. Each reason has been picked up and attacked separately from all the others. The motives supplement and support each other; most of them, if considered by themselves, isolated from the others, probably would not be strong enough to justify a New Capital.

The American reader should always have in mind the Brazilian reality. In the United States, today, the location of the Nation's Capital is a matter of minor importance. But the same might not have been true if, in the nineteenth century,

Washington had been built in the Middle West.

In 1894, Luiz Cruis already saw the New Capital City as a center that would unify Brazil and as a nucleus with radiating transportation routes, then only railroads. The reasons he mentions in his report have not changed.

Among them, stand up the obvious advantages to be brought to these vast central areas, which have lacked up to now the indispensable vitality to prosper properly. To the New Capital would converge important railroads that would be like arteries leading not only to the main ports on the coast but also to the several State Capitals ... As to the inconveniences and disadvantages of such measure, we think that they exist only in the minds of a few people with no propensity to progressive ideas; they believe that the difficulties of the question are unsurmountable and prefer to stay on the tracks of the old routine which is incompatible with any progress."¹²

Today, one of the ways to view the New Capital is from the point of view of an instrument of national development and integration of the country.

With strong persistence, students of Latin American problems call attention to the fact that one of the Continent's basic weaknesses is the lack of integration between cities and the countryside.

It is easy to point to urgent needs for social action in the Latin American cities. These cities however, already absorb a disproportionate share of the government social expenditure, and governments are under constant pressure to discriminate in their favor. At the same time some of the most unhealthy aspects of urban growth in Latin America derive from the static and apathetic rural poverty, including the overflow of cheap labour

¹²Cruis, Luiz, Planalto Central do Brasil, Livraria José Olympio Editora, 3rd ed. Rio de Janeiro, 1957, p. 109.

which keeps urban wages down, the inadequacy of urban food supply and the lack of integration between city and countryside. Urban social aspects and the solution of these problems must therefore be viewed in the larger context of rural-urban relationships.¹³

These considerations apply to Brazil. But this situation is even more harmful to Brazil than to the majority of the Latin American countries. Since in most of these countries a large proportion of the population is urban, some justification might be found for the fact that cities receive more attention than the countryside. But in Brazil, the majority of the population is rural. Since the present Federal Capital is located in the midst of a fairly urbanized area, it is constantly subject to pressure from these cities. Such a situation tends to give the Federal Government a false idea of the country's problems. Besides, the Federal Government, as well as State Governments, seems to be more concerned with industrialization than with improving agriculture and raising rural standards of living. The little attention given to rural problems in Brazil is responsible for several economic difficulties. The rural and urban areas are not integrated socially, economically or even physically, since transportation facilities are poor. The low standard of rural population weakens the internal market, forcing the country to rely too much on exports. The unbalanced distribution of economic activity in

¹³United Nations, Report on the World Social Situation, New York, United Nations, 1957, p. 192.

Brazil can be seen through the distribution of incomes, as disclosed by income taxes.

Only 1 per cent of all income tax payers contribute 7 per cent of all income taxes collected. São Paulo State and the Federal District together contribute 75 per cent of all income taxes. The Federal District alone contributes more income tax than all the rest of Brazil except São Paulo State. That means that the income of three million people living in Rio de Janeiro is larger than the income of forty million Brazilians living in all other States except one.¹⁴

The conditions described above have created in Brazil the feeling that the Federal Capital should be moved away from its present location.

Brasilia, per se, may not become an instrument of national development. But one has to consider the New Capital with: (a) all the highways and railroads that are being and will be built in connection with the city; (b) all the new population that will be attracted to Central Brazil (not only public officials living in the New Capital, but also those who will come to surrounding towns); and (c) the agriculture practices to be improved and industries to be attracted. Thus a better balance in the development of Brazil is likely to be achieved.

At one of his press meetings, the President of the Republic recently declared that the Government was aware of the

¹⁴From a lecture delivered to a banker's meeting by Dr. Israel Pinheiro, President of the New Capital Development Corporation. Corporation's publication, mimeographed, Rio de Janeiro, April 1957.

fact that the transfer of the Capital needed to be supplemented by measures to stimulate better agriculture practices and an increasing agricultural production; that the success of Brasilia would depend on the success of agriculture in the region, and that industries would be equally considered in the development of Central Brazil.¹⁵

It is often argued that the development of Central Brazil could be achieved through the construction of better highways and railroads, hydroelectric plants, improvement in river navigation and so on. That is true. However such improvements would take a longer time to develop the region. Due to the scarcity of population and economic activity, the improvements would be little used at the beginning. Industries would take a longer time to move to Central Brazil, since there would be there neither a market nor a labour supply. The longer the initial stages during which facilities would be used below their capacity, the wider the gap between cost and benefits. If transportation facilities could be modernized, agriculture stimulated, and power plants built at the same time that population is attracted and the Capital City is taken away from an inconvenient location, much better results would be achieved. Besides, such a city would offer a better guarantee to developers and would be in a better position to compete with the industrialized South in attracting population.

¹⁵From the press: January 21, 1958

In another aspect Brasilia offers an advantage that no other kind of development would offer, i.e. its psychological impact, which is by no means a secondary reason. Right now, when the construction of the city has hardly started, new industrial towns are being planned and advertized in Minas Gerais and Goias and private power companies announce their expansion.

The disadvantages of Rio de Janeiro as a city are another reason to be added to the preceding ones. The least desirable function for a city like Rio de Janeiro is to be the Capital City of a nation. This marvelous city is an international playground with a hot and humid climate. Rio, itself, is not a basic cause for some of the Federal Government's inefficiencies, but it is undoubtedly a contributing cause. Rio de Janeiro has more problems than any other city in Brazil. Rough topography blocks the city's expansion and strangles traffic. Enormous amounts of money have to be spent levelling hills and digging tunnels. The city's finances are in a perpetual crisis. Slums and water shortages are a constant headache to administrators. Up to now it has been impossible for the Federal Government to avoid getting completely involved in such problems which are basically Rio's and not Brazil's problems. The Presidents have been so persistently called to help solve the city's difficulties that they actually have been functioning as Rio's second mayors. "In 1955 the Bank of Brazil (the Federal Government Bank) made more loans to the Federal District than to thirteen northern and northeastern States,

plus Goias, Mato Grosso and Territories."¹⁶

Besides its inconvenient location, the present Capital, as a City, has been a contributing cause to a rather indifferent policy of the Federal Government toward more distant States.

Summary review.-- The construction of a Nation's Capital in the middle of a wilderness is by no means a simple task. One can understand why, in Brazil, an idea like that took such a long time to mature.

During the nineteenth century the idea of a new Capital located in the interior could only be considered a theoretically possible "ideal" that the country should try to achieve. For a country of the size of Brazil, at the stage of development that it was in the nineteenth century, moving the Capital and developing the inland area were tremendous jobs; not even the coast was developed enough. The country had to build a good base before moving ahead.

By the time of the Cruls Commission the idea was no longer a theoretical possibility, but a perfectly feasible undertaking on the basis of the knowledge and techniques of that time.

Cruls was an outstanding engineer and astronomer and gave the idea a good scientific basis. His Commission checked

¹⁶ Silveira, Peixoto da, A Nova Capital, Rio de Janeiro, Irmãos Pongetti Editores, 1957, p. 61.

temperatures, climate, soils, and volume of water courses. It studied fauna, flora, location of transportation routes and so on.

The remoteness of the site was a difficulty that frightened those who thought about the problem; but it did not frighten Cruls' scientific mind.

The distance between this Capital (Rio de Janeiro) and the center of the zone defined, is about 970 kilometers (about 600 miles) in a straight line. It will always be possible to build a railroad with a developed total length not more than 25 per cent greater than that distance; that will be about 1,200 kilometers (750 miles). Such distance can be easily overcome in twenty hours assuming an average speed of 60 kilometers per hour for passenger trains, including stops. This speed is about 50 to 60 per cent less than the maximum speed already reached by several American railroads.¹⁷

After World War I, the urban centers started growing and Brazil's industrialization speeded up. São Paulo City rose as the largest industrial city in Latin America, threatening Rio's power and influence.

After 1930 the dictatorial government did not give much attention to moving to Goiás, although the Southeast had already reached a reasonable degree of development.

The writers of the 1946 Constitution seem to have felt that the time had come, and that Brazil should not wait longer to move its Capital. Complaints and pressure from other States increased. By 1954, the São Paulo State Government said

¹⁷Cruls, Luiz, Planalto Central do Brasil, Livraria José Olympio Editora, 3rd. ed. Rio de Janeiro, 1957, p. 109.

that the Federal Government should, if necessary, camp in Goias.

The stage after 1946 was the typical stage of a situation that reached its maturity and is just waiting for somebody to do something. This stage is characterized by a series of laws creating, dissolving and changing different Commissions; it shows the indecision created by the lack of somebody to assume responsibility and carry out the work to its ultimate conclusion. As a result of this uncertainty, much time was lost between 1946 and 1955. The decision (or indecision) of the Coelho Commission in presenting two areas to Congress contributed to some of the time lost.

But in a matter of such importance, some amount of overcaution is to be expected.

CHAPTER III

BRASILIA UP TO NOW

Introduction.-- The most important measure for the actual construction of Brasilia was the creation of the New Capital Development Corporation, (Companhia Urbanizadora da Nova Capital do Brasil) which has started building the city. Therefore the study of Brasilia could begin with a study of this Corporation. However, before the creation of this agency, there was already in existence a Commission with similar functions, i.e. the Commission for Planning, Building and Moving the Federal Capital. Since the kind of agency that is suitable for the construction of a New Town is an important part of this dissertation, some attention will be given to that Commission and to some of the measures that preceded its creation.

The same law (No. 1,803) that defined the general area within which the actual site for the New Federal District should be located, authorized the Executive to carry out basic studies for the New Capital. This law was basically an enabling act. However it seems to have concerned itself with matters that should not be dealt with in a law of this nature. For example, Articles 4, 5 and 6 of this law read as

follow:

Article 4. The Federal Government ¹⁸ shall request its Secretariat and Ministries to prepare the plans for its transfer as well as for the transfer of its accessory agencies, to the New Federal District, and investigate the effects of such action on Federal Agencies located in other parts of the country.

Article 5. The Federal Government shall request the proper agencies to study the transfer of the Judiciary, and Legislative, their personnel, material and equipment to the New Capital.

Article 6. These partial plans shall become the 'General Plan for Moving the Capital'.

The above listed articles and especially article 6, deal with technical administrative details. In fact, Article 6 established, in a most unfortunate manner, a method for preparing a basic administrative plan. The law empowered the Federal Government to request several governmental bodies to prepare plans for their transfer to the New Capital, calling this group of independent partial plans the "General Plan for Moving the Capital".

Fortunately Article 6 was annulled by subsequent legislation. Provisions concerning the transfer of personnel and material have been included in subsequent laws.

The Commission for Planning, Building and Moving the Federal Capital.-- As was said before, after Site Castanho was selected, the Commission for the Location of the New Capital

¹⁸ By "Federal Government" the law seems to mean "the Executive".

was transformed into the Commission for Planning, Building and Moving the Federal Capital. This transformation was merely an extension of the previous Commission's powers, without basic alteration of its personnel. The law that created this new Commission clearly stated that it would have the functions of planning, building and moving the Federal Capital; carrying out definitive studies concerning water supply, transportation and communication, agricultural development, transfer of governmental departments, personnel and material; and preparing the first draft of the New Federal District's codes and ordinances. The law stated that these studies would become the "General Plan for Moving the Capital". All the Commission's expenses would be covered by special funds and budget appropriations. The Commission should complete its studies and prepare the plans within five years.

This law represents some progress in relation to law No. 1,803, insofar as the preparation of the General Plan for Moving the Capital is concerned. The preparation of the plan became the function of a single agency and the scope of the plan was broadened. But, except for this, the law did little more than change the previous Commission's name. By changing the title, the law did not provide for a corresponding change in the Commission's functions, rights and powers, except as noted above. The former Commission for the Location of the New Capital did not have the functions

of building the city and moving the Federal Capital. The most important addition made in the law that transformed that Commission, was the one giving those powers to the new Commission. However, in the text of the law, very little emphasis was given to this important addition. The law was vague on matters relating to actual construction and to financing of construction works. This vagueness shows quite clearly that there was no serious intention of building the city as soon as the plans were completed.

The law above summarized can be better understood when one recalls the atmosphere prevailing at that time. The general attitude was one of apathy and distrust generated by the indecision of higher authorities. Although the general feeling was that the Capital should be moved, the matter was not taken too seriously. After more than a century of studies and talks, the tendency was to continue studying and talking.

Such an atmosphere was extremely harmful to the preliminary studies mentioned in the law just summarized. It was responsible for a strengthening of the belief that Brasilia should get started immediately whether there were enough studies or not. (The statement made by São Paulo State Governor that the Federal Government should "camp" in Goiás is significant) And that was exactly what happened. The Commission for Planning, Building and Moving the Federal Capital, which should complete its studies in five years, did not last more than nine months. Some engineering studies were

made on water and energy supply and transportation routes. But other than that, the basic and so often mentioned General Plan for Moving the Capital was never completed.

In spite of these difficulties, the Commission for the Location of the New Capital had definitely settled the question of site selection. The new Commission took another important step. It organized a national contest for the design of a "Pilot Plan" for Brasilia.

The contest for Brasilia's plan.-- On September 19, 1956, the Commission for Planning, Building and Moving the Federal Capital announced the conditions regulating the contest for the Pilot Plan for Brasilia. According to these conditions, participants should live in Brazil and be registered architects, engineers or city planners. The Pilot Plan should include: (a) The city's basic layout, including the different elements of the urban structure, the location of, and connections between the several sectors and centers of the city and the distribution of open spaces and communication routes; and (b) an explanatory report.

Competitors could present the elements on which their plans were based, such as: proposed land use for the New Federal District; a program for the city's development, indicating the stages for the city's evolution, as well as an approximate schedule; regional economic balance and stability including employment opportunities and returns on planned

investments; a forecast of a progressive and balanced development, assuring the provision of adequate services and supplies at each stage of development; the adequate distribution of population in rural and urban areas; and so forth.

Competitors were given one hundred and twenty days to complete their plans. Prizes were as follows: First Prize, Cr\$ 1,000,000 (approximately \$20,000);¹⁹ Second Prize, Cr\$ 500,000; Third Prize, Cr\$400,000; Fourth Prize, Cr\$ 300,000 and Fifth Prize Cr\$ 200,000.

The authors of the winning plan would be given preference in the development of the city if agreement could be reached between them and the Corporation.

The Commission made available to competitors the existing information about the New Federal District, such as maps, aerial photos, overlays, models, etc., as well as data and tables concerning soils, sub soils, macro and micro climate, surface and underground waters, possibilities for agriculture and livestock and existing land use. Most of this material was prepared by Donald J. Belcher & Associates, Inc. The Commission facilitated for competitors a trip to the New Federal District.

The first of the above-mentioned conditions calls for

¹⁹ It is difficult to convert cruzeiros into dollars, due to the instability of the Brazilian currency. The rate adopted was fifty cruzeiros to one dollar.

an explanation. There was no law in Brazil regulating the profession of city planning as such. Therefore there were no registered city planners. All those who were registered architects or engineers were authorized to do city planning. Probably there was not in the whole country a single trained city planner who was not also either an architect or an engineer. The expression "city planner" could have been excluded from the first condition. It was not required that all the members of the competing teams should be either architects or engineers. Although most of the teams were composed exclusively of such professionals, a few groups included also sociologists, economists and agronomists, either as participants or advisers.

The Commission seemed to have been aware of the fact that for the moment the plan should be basically a city layout or at least a simple site plan. That explains the use of the expression "Pilot Plan". But on the other hand it was apparent that the Commission did think about the possibility (or even the desirability) of a more comprehensive plan. This seems to be a fair interpretation of the conditions setting forth what competitors could present besides the minimum requirements of the city's layout and an explanatory report. This listing of what competitors could present to support their plans seems strange. In reality it would seem better that competitors should be allowed to present whatever they

deemed necessary to support their plans. Apparently the contest's organizers were suggesting that participants include in their plans some of the extra elements listed in the contest's conditions.

A total of twenty-six plans were entered in the contest. An international jury was organized to judge the plans.

By the end of the contest, the Commission for Planning, Building and Moving the Federal Capital had been dissolved and replaced by a Corporation. The president of the New Capital Development Corporation was the jury's non-voting Chairman. Other members were three Brazilian architects and the following foreign members: Sir William Holford, British architect and town planner; Mr. Stamo Papadaki, American architect; and Mr. André Sive, French architect.

Sixteen out of the twenty-six plans were eliminated from the start by the jury's unanimous decision. Sir William Holford soon became one of the most influential members of the jury. In general, the jury's final decision was strongly influenced by the opinion of the three foreign members.

Obviously, the plans presented reflected the city planning ideas that prevailed in Brazil. Such ideas were strongly dominated by pure theory and intellectual speculation. "The City" was studied and analyzed as an abstraction. As a result of this attitude, a series of theories were

presented trying to set forth the "Ideal City". Very often in the history of culture, new intellectual movements or new trends in cultural development have begun with an Utopian phase. The modern city planning movement had this phase, which followed the advent of contemporary architectural trends. The architect was the predominant figure in this period. Cities were mainly architecturally treated in spite of the generalized awareness of the fact that cities also presented important economic, social, and other aspects. Planners were not completely conscious of how economic and social aspects fitted in the overall urban-planning scheme.

Brazilian city planning was, to some extent, at this stage. Debates were often on issues such as "The Ideal Size of Cities", "The Linear City", "The Vertical City", "The Poli-Nuclear City", and so on. Most of the plans presented corresponded to some of these stereotyped "solutions" for "The City".

As a result, the majority of them were excessively rigid, including an amount of detail that was difficult to justify. There was a strange paradox between this dogmatic attitude and the recognition, on the part of Brazilian architects, of the human and social aspects of cities. Strangely enough, the public, its interests, and the forces it generated were often neglected. They were almost thought of as being a threat to city "order". This concept of "order" was over

emphasized and a plan was conceived almost as a straight jacket. There was no doubt that Brazilian architects knew that the ultimate goal was the public welfare and the achievement of a better urban environment to enhance a sound social life. But they were not aware of the limitations of means of achieving such a goal. They believed that they knew what the public welfare was, and considered themselves more or less as heralds of a new urban way of life.

One of the consequences of this attitude was that not enough attention was given to the fact that Brasilia was to be a Capital City. Most architects probably were pretty aware of this fact and knew that the city had to have the character of a Capital City. However, the tendency towards studying cities as an abstraction was so deeply rooted in their minds that most plans lacked character.

The first remark Sir William Holford made about the winning plan was: "The only plan which is for an administrative capital for Brazil." (underlining by Sir William Holford).

The Winning plan.-- Although most of the plans presented were prepared by teams of experts, the winning plan was the work of a single man. Its author, Mr. Lucio Costa, was not a trained city planner. In his report he called himself a "free lancer of city planning". Actually he was more than that; he was an outstanding architect, an expert in Brazilian colonial art and, above all, a very learned man. His plan hardly deserved

that name since it was only a free-hand sketch, as it should be, and as he intended it to be. (see Fig. 6). Mr. Costa presented only what was specifically required by the contest's conditions, i.e. a layout for the city and a report. He presented no indication of having given any serious thought to some of the points that were here interpreted as implied suggestions of the contest's conditions. This attitude seems to have merit.

Mr. Costa started his report with the following words:

First of all I must apologize to the Directors of the New Capital Development Corporation and to the jury of this contest, for the simple manner in which this plan for the New Capital is suggested: then too, I must justify it. It was not my intention to enter the contest, and in reality I am not doing so. I am merely getting rid of a possible solution that was not sought, but took shape -- so to speak -- as a whole and almost spontaneously. ... If the suggestions are valid, the data presented, though apparently summarized, will be sufficient, for they will show that while the original idea took shape spontaneously, it was later carefully thought out and studied. If they are not valid, their elimination will be easier and I shall not have wasted anybody's time.²⁰

The backbone of the Costa Plan consisted of two major thoroughfares crossing at right angles. Along one of the thoroughfares, called the Highway Residential Axis, were distributed the bulk of residential areas. These were planned as a large number of super blocks for multifamily residential

²⁰Costa, Lucio, "Relatorio do Plano Piloto de Brasilia", Modulo, No. 8, July 1957.

buildings. (see Fig. 7). These superblocs also contained such neighborhood facilities as schools, playgrounds, churches, and neighborhood businesses. This axis had a central roadway for high-speed traffic and lateral roadways for local traffic. There were also independent routes for trucks, along which were located repair garages, light warehouses and similar commercial uses, as well as small agricultural plots for growing of vegetables and fruits.

Along the other axis -- called Monumental -- were located the amusement center, sports center, central commercial areas, the cultural center, municipal buildings and so on. At the western extreme of the monumental axis was located a railroad station and a small area for light industry. At the eastern extreme there was a large triangular-shaped open space on which the main buildings housing the Legislative, the Judiciary and the Executive were located. Areas were designated for a Zoo, Botanical Garden, University and Embassies. Close to the lake were located the single-family residential areas. Here Mr. Costa adopted the principle of planning a green space inside the blocks. The plan was strongly based on the circulation system. There are three "clover leaves" at each branch of the Highway-Residential Axis, and an equal number of lower-level crossings. Automobiles and trucks circulate both in the central and in the residential sectors without any intersection. Mr. Costa

emphasized that the separation between vehicular and pedestrian traffic was not carried to a systematic and unnatural extreme.

The following are the original notes written by Sir William Holford, when commenting on the Costa Plan:

Criticisms: (a) Too much indeterminate land between the Government Center and the lake. (b) Airport may be further away. (c) No use made of the far side of the lake and peninsulas for residence. (d) Regional road pattern not shown, especially in relation to satellite towns, if any. Advantages: (a) The only plan which is for an administrative capital for Brazil. The elements of the Plan can be seen at once: it is clear, direct and fundamentally simple e.g. Pompeii, Nancy, Wren's London, Louis XV Paris. (b) After ten years the plan is completed while still growing. (c) the town is limited: further growth after twenty years (1) by peninsulas (2) by satellites. (d) One center leads to another so that the plan can be easily comprehended. (e) The character of the plan is of the twentieth century; it is new; it is free and open; it is disciplined but not rigid. (f) The method of growth -- by tree planting and a few roads and the Mall -- is more practical than any other. (g) The Embassies are well placed in a changing landscape setting. Place of Three Powers looks into the town in one direction, and to the park in another. One must proceed from the general to the particular, not vice versa. The general can be expressed simply and shortly. But it is easier to write a long letter than a short one. Here we have many projects which can be described as over statements. Number 22 (the Costa Plan) appears by contrast as an under statement. But in fact it explains all one needs to know at this stage: and omits everything irrelevant.²¹

The Agency that is administering Brasilia's construction works.-- The New Capital Development Corporation (Companhia

²¹ Quoted in: Silveira, Peixoto da, A Nova Capital, Rio de Janeiro, Irmaos Pongetti Editores, 1957, p. 332.

Urbanisadora da Nova Capital do Brasil) -- from now on referred to as NOVACAP -- was created in September, 1956, by a law that can be summarized as follows: Article 1 stated that the Capital shall be moved into the New Federal District whose boundaries were established by Donald J. Belcher & Associates, Inc., and the Commission for the Location of the New Capital.

Article 2 authorized the Executive to take the following actions: (a) organize a Corporation to perform the functions established in Article 3; (b) establish and build, through the proper federal agencies or with the cooperation of federal agencies, a system of transportation and communication between the New Federal District and States and Territories. (Such system should, as far as possible, be coordinated with the National Transportation Plan); (c) give the National Treasury's guarantee to credit operations undertaken by the Corporation in the country or abroad, for the purpose of financing services and construction works of the New Capital or related to it; and (d) attribute to the Corporation the construction, through contractors or concessions, of works related to the New Federal District, not specifically included in the Corporation's functions.

In Article 3 the Corporation was given the following functions and powers: (a) planning and carrying out the works for locating and building the New Federal Capital

(these works may be done directly by the Corporation, sub-contracted to reputable firms or handed to Federal, State or Municipal agencies); (b) purchasing, exchanging, leasing or selling land in the New Federal District or anywhere in the National Territory if in connection with the purpose established in the law; and (c) carrying out, upon proper agreement, works under the jurisdiction of Federal, State or Municipal agencies, connected with the construction of the New Capital.

The Corporation had an initial capital of Cr\$500,000,000 (US 10,000,000 United States dollars) divided into 500,000 shares which were entirely subscribed to by the Federal Government. This capital may be increased and the Corporation may raise more funds, but the Federal Government shall always keep at least 51 per cent of the capital stock.

The Corporation is to be administered and supervised by an Administrative Council, a Directory and a Fiscal Council. Their members serve for five-year terms and are appointed by the President of the Republic in accordance with the following conditions: (a) the Administrative Council has six members and its decisions are binding on the Directory which may appeal to the President of the Republic; (b) the Directory includes one president and three directors (the Directory's president is the chairman of the Administrative Council and is the Corporation's president (c) the Fiscal Council has three members and has the

supervisory functions required by the Brazilian law which regulate corporations in general; and (d) the members of the Directory and Administrative Council must live in the New Federal District.

The Corporation may use equipment and services of the Federal Government. On matters concerning the acquisition of equipment or contracts for the execution of works, the Corporation must receive bids if more than one million cruzeiros (US \$20,000 dollars) are involved. The administrative Council may, upon the Directory's suggestion, dismiss the bidding. In this case, the reasons therefor are to be clearly specified in the minutes of meetings and the President of the Republic notified within five days. If in disagreement, he may order the receiving of bids.

A section on General Provisions states that the Corporation must prepare a plan for economic development of rural areas in the New Federal District.

This law gave the New Capital the name of Brasilia. The law is far more satisfactory than the one that created the Commission for Planning Building and Moving the Federal Capital. Once more, positive legislation became the base for positive action. Clearer provisions were made concerning important matters such as: use of contractors and cooperation with other governmental agencies; powers for the acquisition of land; land policies; and financial policies.

The law summarized above referred to the creation of NOVACAP. On the other hand, the Corporation prepared its own bylaws which included, among others, the following provisions:

(a) functions of the Administrative Council: (1) to decide, upon the Directory's suggestion, on matters referring to the acquisition, selling and leasing of land and the location of the Corporation's properties; credit operations carried out by the Corporation; dismissing of bids; and so on; (2) to approve the Corporation's accounting; (3) to inspect the Corporation's activities and make suggestions for their improvement in order to promote higher efficiency.

(b) functions of the Directory: (1) to present to the Administrative Council matters requiring its decisions; (2) to prepare and present to the Administrative Council reports, statistics, accountings and so on to facilitate the Council's supervisory functions; (3) to organize technical departments and to prepare regulations governing their operations; and (4) to administer the Corporation in matters not within the administrative powers of other organs.

The Corporation's president supervises its work, especially in matters concerning personnel (such as hiring and firing) and finances (such as depositing and cashing money). He also appoints departmental heads.

By February, 1957, NOVACAP's Directory had approved the creation of the following technical departments:

- (a) Department of Transportation and Public Works.
- (b) Department of City Planning and Architecture.
- (c) Department of Finances.
- (d) Department of Purchases.
- (e) Department of Personnel and Equipment.
- (f) Department of Education and Health.
- (g) Department of Public Safety.
- (h) Department of Public Relations and Services.

Financial and land policies.-- The legislation summarized above shows that NOVACAP was financially independent and was given a considerable amount of financial freedom. In March, 1957, the Corporation floated a Cr\$ 700,000,000 (US\$ 14,000,000 dollars) bond issue at 8 per cent. If the holder of a bond were to use it in payment for a lot in Brasilia, the value of the bond was increased by 10 per cent. These bonds had little public acceptance and not enough funds were raised.

NOVACAP contracted with several Federal Agencies for the execution of works that would normally have been carried out by those agencies. In such cases the works were financed with funds taken from each agency's budget.

In May, 1957, the U. S. Import and Export Bank made a ten-million-dollar loan for the development of Brasilia.

One of the points most emphasized by Brasilia's critics has been that Brazil cannot, for the moment, afford the construction of a New Capital. This is a short-sighted point of view. To answer this criticism, NOVACAP stated that Brasilia would be self liquidating. The Corporation clearly showed its intention of paying for the city's construction with revenue derived from lots to be sold. However, the opinion that the Federal Government should own all land within the New Federal District was expressed by some civic leaders.

NOVACAP has adopted, up to now, a heterogeneous land policy. It is selling, donating and leasing land. Lots for schools will be leased at a 6 per cent rent on the value of land. Lots for churches, embassies, and hospitals will be donated, if construction is started and finished according to a prearranged schedule.

NOVACAP's Administrative Council recently approved (upon the Directory's suggestion) regulations for the development of rural land. They included, among others, the following provisions: (a) For the purpose of developing rural areas in the New Federal District, the Corporation is to subdivide land and lease it. The size of the tracts may vary between twelve and one-hundred-and-twenty acres. Tracts for cattle raising are to have an area up to two-hundred-and-forty acres and are to be located farther away from the city; (b) in each

subdivision, land is to be reserved for the necessary public facilities and amenities such as streets, roads, schools, churches, markets and experimental agricultural fields; (c) land is to be leased for a period of thirty years. The leases may be renewed, depending on the improvements made by the lessee and on the amount of production; (d) lessees shall pay a rent of 5 to 10 per cent on the value of the land, starting at the beginning of the third year of the first lease. No rent is to be charged during the first two years; (e) land values are to be annually reviewed; and (f) NOVACAP is to prepare, directly or through governmental agencies, plans to stimulate development of agriculture and livestock. These plans are to include financial, technical and educational assistance.

Cooperation between NOVACAP and other Governmental agencies.--

NOVACAP recently entered into agreement with several Federal governmental agencies for the purpose of speeding up construction works related to Brasilia.

The technical Office of the Ministry of Agriculture will prepare and carry out a plan for agricultural development in the New Federal District.

The Ministry of Transport has agreed to allow NOVACAP to build some railroad connections. The Ministry has established the standards and specifications which NOVACAP must follow, and will supervise construction works. According

to this agreement the Corporation has contracted with the Ministry for the construction of railroads to connect Brasilia with the Sao Francisco River, Sao Paulo State and Minas Gerais State railroad network. (see Fig. 5).

The Ministry of Education has agreed to locate a school for adult education and a school for technicians in Brasilia. The building is to be constructed by NOVACAP.

The National Highway Department has allowed the Corporation to build highways connecting Brasilia with important surrounding cities. (see Fig. 5).

Several Federal Agencies have already started working on problems of Brasilia, without special agreements, as part of their normal functions. The National Council of Statistics is working on population data and censuses. The National Institute of Colonization and Immigration is studying the location of immigrants in the New Federal District. The National Department of Rural Diseases is conducting a research on the kinds and intensity of diseases prevailing in the New Federal District.

Construction Works.-- NOVACAP started three major permanent construction projects before Brasilia's plan had been selected: the President of the Republic's official residence, a large hotel, and an airport. They are located outside the area reserved for the city itself. Construction was started mainly to discourage doubts and distrust.

At the beginning, the Corporation built its warehouses, temporary buildings to house its offices, service roads, and accommodations for workers. The majority of the workers were unmarried and were housed in dormitories.

Immediately after the selection of the Pilot Plan, Mr. Costa was invited to cooperate with NOVACAP's Town Planning Department, and the Corporation started executing the plan.

Soon a large number of people started coming to the site where construction works were under way. These people were mainly low-income rural population. They came to seek jobs or to build small commercial establishments such as repair shops, grocery stores, hotels and so on. To handle this situation, NOVACAP has reserved an area in Brasilia where a "Free City" is being built. A few dust roads were opened and land subdivided. Lots were given free of cost for a period of four years, expiring in 1960. By contract, all buildings on these lots are to be torn down at that time. This busy town has been very properly called a "Far West Town of the Motor Age". Bus and truck traffic is intense since the bulk of goods, material and people come by road.

The Corporation has built several temporary facilities such as schools, restaurants, a hospital and a social club. On the other hand, the "Free City" has its movie theaters, churches, banks, clinics and other facilities.

Before establishing the date for the official transfer of the Federal Capital, Congress asked NOVACAP for information about the progress of construction works. The Corporation said that Congress could establish any date after March, 1960 for the moving of the Capital. Construction works were expected to progress according to the following schedule:

(a) To be completed in 1958: (1) the President's official residence; (2) Brasilia-Anapolis Highway and Brasilia-Frutual Highway (These highways will connect Brasilia with the São Paulo State Highway network); and (3) one neighborhood unit for 15,000 people.

(b) To be completed in 1959: (1) the Executive's Palace; (2) the Supreme Court Building; and (3) a hydroelectric plant.

(c) To be completed in 1960: (1) ministerial buildings; and (2) the National Congress building.

For the moment, residential buildings are being built by the Retirement and Pension Institutes. These are social security agencies, insuring workers engaged in industrial, commercial, transportation and other activities. In Brazil these institutions are semi-public. Their capital is private and is made up of contributions from the insured workers. However their program is administered under the general supervision of the Ministry of Labor, Industry and Commerce. These agencies lead in the field of furnishing low-income housing in Brazil. They have built some good housing projects for the insured workers.

Several Institute projects are being built in Brasilia. Some of them will furnish facilities for the insured workers living in the New Federal District and others are capital investments of the Institutes. Among the latter are the first super blocks that are being built along the Highway Residential Axis, according to plans prepared by NOVACAP.

Private enterprise has not yet contributed to construction works. Only recently the Corporation started public sale of commercial and residential lots.

Population.-- Brasilia has already had two censuses. Figures included both NOVACAP's and contractors' workers and the "Free City" population. The first one, made in March, 1957, presented the following results:

Men	1,369
Women	248
Children	396
Total,	2,013

The results of the second census made four months later were:

Males	4,600
Females	1,683
Total	6,283

Out of this total population, 52 per cent were born in Goias State, 18.4 per cent in Minas Gerais State and 7.8 per cent in São Paulo State.

The first immigrant families have already been located in Brasilia. They are a group of Japanese families who are working in the New Capital agricultural areas.

In March, 1958, the President appointed a Committee to study the transfer of governmental personnel, departments and material to the New Federal Capital. The Committee included one representative of each Ministry and one representative of NOVACAP. It is attached to the Department of the Administration of the Public Service. Three members of the Department were appointed as Committee advisers. They are the Director of the Division of Personnel, the Director of the Division of Public Buildings and the Director of the Budget Division.

The Committee's functions are: (a) to study which Federal Agencies should be transferred to the New Federal Capital at the first stage; (b) to investigate the minimum amount of personnel to serve these agencies; (c) to make a survey of the needs of the transferred personnel and their families; (d) to investigate which officials are willing to move to the New Capital and prepare a list of such officials whether living in Rio or not; (e) to make suggestions and recommendations concerning the problems involved on the basis of these investigations; (e) to make studies of all the materials and equipment to be moved and to make plans for their transportation; (f) to make a survey of the number of dwelling units available in Brasilia and to prepare a plan for the location of the transferred families; and (g) to inquire into and advise upon all measures necessary to the transfer of Federal Agencies to the New Capital.

CHAPTER IV

EXPERIENCE IN THE PLANNING AND CONSTRUCTION OF NEW TOWNS:
ITS APPLICATION TO BRASILIA

Introduction

The concept of New Town.-- This section is devoted to the complex task of defining the concept of New Town.

An exhaustive study of New Towns, for purposes of definition, would have doubtful usefulness and would fall outside the scope of this work. Quite often, attempts in defining a concept too precisely become sterile and a source of useless debate. The purpose of this section is to throw some light on the idea of New Town without any intention of precise definition.

The concept of a New Town varies with the concept of a "plan" or "town planning". A New Town would generally be considered one which was planned before it was built and was built according to its plan. But what is considered a plan, varies from time to time. It would be possible to establish a set of characteristics or requirements according to which a community would be said to have had a plan, if the concept of a plan of a certain time were adopted. If the community has had a plan, and if construction had followed it, then, the town would be a New Town.

It is not possible to generalize this method so as to

include different historical periods. If, for instance, the planning concepts of the beginning of the nineteenth century are adopted, it would be possible to find several modern towns which would meet the requirements adopted and consequently would be considered New Towns. However, on the basis of current planning concepts, such cities would not be considered New Towns since they have not had what today is considered a plan.

If a modern concept of plan is adopted, then, several cities -- Washington D. C., for instance -- which in the past were considered New Towns, would not be so defined today. This exclusion would be unreasonable.

The shortcoming of such method can be better understood by examining some ideas presented in the Supplementary Report of the Urbanism Committee to the National Resources Committee. The writers, Arthur Comey and Max S. Wehrly, define New Towns, which they call "Planned Communities" using a set of characteristics as follows:

... it was decided at the outset that planned should mean comprehensively planned in accordance with the modern concepts of city planning, but not necessarily so planned in all respects. A community with a mere rectangular street plan, though technically meeting the requirements of pre planning, does not necessarily indicate the application of modern techniques and so is not included in this study; nor is a community consisting of successive additions or subdivisions of blocks and lots each planned separately, with comparatively little thought for the community as a whole. In order to have a community that may be called planned, each of the three primary considerations of function, form and fitness must

be presented to some degree.²²

Washington D. C. is one of the cities examined in the Report. But it is difficult to understand how Washington D. C. can be called a planned community according to the requirements mentioned. Certainly Washington D. C. was not "comprehensively planned according to the modern concepts of city planning" even considering the fact that the city was not planned in all respects. The American Capital did become a community composed of "successive additions" and "subdivisions of blocks and lots each planned separately with no regard to the community as a whole." It is believed today that Washington D. C. has lost some qualities necessary for an efficient performance of its administrative function.

The requirements of form, function and fitness are difficult to discuss since these are subtle and subjective concepts. Let us assume then a hypothesis. One of the functions of the British New Towns was to decentralize some large cities in England and Scotland. Today, it is questionable if they have succeeded in fulfilling this function. Let us assume the existence of one of these towns which has also failed in fulfilling its other functions; and which, despite all the care with which the British New Towns have been

²²Urbanism Committee, Urban Planning and Land Policies, Supplementary Report of the Urbanism Committee to the National Resources Committee, Washington, United States Government Printing Office, 1939, Vol. II, p. 8.

planned and built, has also failed to achieve a certain form and fitness. But this town is thought as being a New Town, and was built according to the most advanced modern planning principles. Would it be fair to say that this hypothetical town would not be a New Town? The writer's answer is, "No."

The attempt to define New Towns by using one set of requirements is not satisfactory. There is not one concept of New Town, but several.

What is important is the idea of New Town of each period. Any city which was thought of as a New Town at the time it was built, would be here considered a New Town. To do so, one has to rely on history. Today it is known that the builders of Washington D. C. and their contemporaries thought of the American Capital as a New Town (whether using this expression or not). Therefore Washington D. C. is here considered a New Town.

This belief that a New Town was being built, the attitudes of persons involved, the problems they saw (or did not see) and the solutions they adopted are what is important in the idea of a New Town and in the application of the experience in its planning and construction. Looking back, it is possible to examine to what extent the shortcomings and advantages of those attitudes -- and therefore the shortcomings and advantages of the concept of a New Town of a certain time -- were reflected in the successes and failures of New Towns.

Steps that Precede the Construction of a New Town

The motivation for the New Town: First decisions.-- During the past few decades, New Towns have been built for a variety of reasons by both public and private enterprise. The majority of New Towns in modern times have been built by industries. Governments have built New Towns in connection with regional development plans, public or subsidized housing projects, defense programs, decentralization of population and economic activity and state or national capitals.

In recent years, philanthropic organizations and real-estate agencies have successfully built New Towns.

The reasons for the construction of New Towns and consequently the functions these are expected to fulfill are basic factors determining the preliminary studies to be made. However not all the functions or the first requirements have to be, or can be, determined at the outset.

The first essential in building a New Town is a clear statement of what might be called the basic program. Some persons might call this basic program the motivation for the New Town or the proposed economic base. Others might call it the analysis of the market to determine the need for the New Town and the essential functions the town will serve in the national economy.²³

²³Geer, David S., "Oak Ridge; A World War II New Town", Journal of the American Institute of Architects, January 1951, p. 16.

This statement should not be -- as its author made it -- generalized so as to include all New Towns. Besides, there seems to be a certain confusion in the expressions used. Actually the motivation for the New Town, its proposed economic base and the market analysis are quite different things. They are not different expressions of the same thing. The statement of the motivation for the New Town generally precedes the analysis of the market (if such analysis is necessary). American authorities first came to the conclusion that it would be desirable or necessary to build a New Town in which to carry on atomic research. Then, an investigation was made of the requirements the town should meet. A market analysis -- if any -- would be a kind of study to be included in the second of these steps. The two steps are not one and the same thing.

In some cases, not even a statement of the motivation for the New Town is a first essential. A market analysis and investigation of the economic feasibility of the New Town may be a step preceding the preparation of its basic program. The market analysis, in this case, would determine the function and the kind of the future city. Therefore, there would be no need to organize a program before the results of the market analysis, since the latter might show that the New Town is not economically feasible.²⁴

²⁴ For an example of such a case see: Hammer and Co., Inc. Atlanta, and W. C. Byrd, Planning Consultant. New Town for Metropolitan Atlanta; Report on the Feasibility of a Proposed Development in Fayette County, Georgia, Atlanta, 1956.

In many cases, neither the future economic base nor the market analysis is the first essential in a decision to build a New Town. This is especially true in the case of New Towns built by governments as part of a regional or national development plan.

The British Government, after accepting Sir Patrick Abercrombie's proposals for building New Towns, appointed a Committee with the following functions:

To consider the general questions of establishment, development organization and administration that will arise in the promotion of New Towns in furtherance of a policy of planned decentralization from congested urban areas; and in accordance therewith to suggest guiding principles on which such towns should be established and developed as self contained and balanced communities for work and living.²⁵

The Committee, headed by Lord Reith of Stonehaven and known as the Reith Committee, made studies on the following points:

- (a) the possible kinds of agencies that could build the New Towns,
- (b) the acquisition of the Town sites;
- (c) size of the Towns;
- (d) research on the opinion of local authorities and civic leaders;
- (e) building development and the process of settlement. Speed of construction;

²⁵ Terms of reference of the New Towns Committee. Minister of Town and Country Planning and Secretary of State for Scotland, Interim Report of the New Towns Committee, London, His Majesty's Stationary Office, 1946, Cmd. 6759, p. 2.

- (f) land and financial policies;
- (g) local government of the New Town. Position of the agency when the town is developed;
- (h) location of New Towns in relation to other towns and cities;
- (i) Physical planning problems such as: construction and design standards, codes, landscaping, and utilities;
- (j) communication and transportation;
- (k) education, health, recreation, social and religious life, and
- (l) execution of the plan and organization of its administration.

It should be noted that these studies were general. They did not refer to any specific New Town. When this Committee was appointed, the British Government had only decided to adopt the policy of building New Towns and did not know where or when they would be built. The Committee's investigations were carried out before any study was made concerning the sites for the towns, their proposed economic base, or an analysis of the market.

The conclusion is that the first essentials vary from town to town, and that no generalization can be made.

In the case of Brasilia, the first step was to determine the reason and the need for the New Capital. A market analysis would be unnecessary and meaningless.

A basic general investigation along the lines of that carried out by the Reith Committee would have been very useful and should have been made. It could have been made either

simultaneously with the site selection studies or immediately after them. Even the terms of reference of the Reith Committee would fit the Brazilian situation. They could read as follows:

"To consider the general question of establishment, development organization and administration that will arise in the construction and transfer of the Federal Capital; and in accordance therewith to suggest guiding principles on which the Federal Capital should be established as an administrative center and as an instrument to stimulate a more balanced National development."

It is important to emphasize the nature of such investigations (general question of development, organization and administration) and their purpose (to suggest guiding principles). Their primary function, in the case of Brasilia, would have been to orient governmental policies and decisions related to the New Capital. They would have guided the Executive and the Legislative bodies in the preparation of laws, both as to their context and proper timing. This investigation would not have made specific studies, but would have investigated what studies would be necessary, by whom, and when and how they should have been made.

In the case of Brasilia such preliminary investigation might have studied: the possible kinds of agencies that could build the New Capital; the possible ways of financing the city's

construction; the effects of the expenditures involved, on the national finances; land policies; the transfer of the Federal Government, its personnel and equipment from Rio to Brasilia; how to reduce to a minimum the disturbances that such a transfer would bring to governmental functions; what should be the stages of such transfer; what effect the stages of the transfer would have on the stages of Brasilia's construction; and many other similar problems.

Once the Federal Government had been oriented by these preliminary investigations and once it had set up its general policies about planning, building and moving the Federal Capital, then it should order the preparation of the General Plan for Moving the Capital. According to instructions given by the Federal Government, specific studies should have been made on matters such as: agricultural development in the New Federal District; transportation and communication; financing of construction works; management of land; location of immigrants and population; transfer of the Federal Government, its personnel, material and equipment; and so forth.

These studies should have been carried out by the proper agency or agencies, existing or to be created, according to the decisions of the Federal Government.

Only after the preparation of the General Plan for Moving the Capital, should the contest for Brasilia's plan have been organized. The former planning would have provided

important information that competitors could have used in the preparation of their plans.

The lack of proper guidance and a clear program of policies on the part of the Federal Government, the apathy on most matters concerning the New Capital, and the logical consequence of this apathy, i.e. an abrupt shift from apathy to hurry, were the basic reasons why not enough importance and time were given to the preparation of the General Plan for Moving the Capital.

Due to the lack of such a plan, there has been, up to the moment, no coordination between construction works and the stages of the transfer of the Federal Government; or between the construction of dwelling units and the population that will be transferred. These and other faults will be examined later.

Site selection. -- The selection of sites for New Towns of national importance generally includes two basic phases. The first phase is the determination of the region or general area where the city is to be located.

At this stage the selection of the area does not depend so much on technical and engineering studies as it does on the role of the city and on its functions. The selection of the general area is, therefore, a decision primarily governmental, since the New Town is expected to be of national importance. The selection is based on political and economic factors at a

national level.

Thus it was that the British Government decided the general areas where the British New Towns should be located, i.e. around the large cities.

Similar procedures were followed in Australia before the construction of Canberra. General requirements of the city and its location were included in the Australian Constitution in section 125, as follows:

The Seat of the Government of the Commonwealth shall be determined by the Parliament and shall be within territory which shall have been granted to or acquired by the Commonwealth, and shall be in the State of New South Wales, and be distant not less than one hundred miles from Sidney. Such territory shall contain an area not less than one hundred square miles and such portions thereof as shall consist of Crown lands shall be granted to the Commonwealth without any payment therefor.²⁶

Once the general area is determined, the second phase is to select the actual site for the New Town. The bases for such selection are purely technical and local. They include studies of water and energy supply, natural resources, soils, climate, topography, accessibility and so on.

The studies concerning site selection were probably the only basic preliminary investigation that, in Brasilia, was carefully carried out.

²⁶ Quoted in: Report from the Select Committee Appointed to Inquire into and Report Upon the Development of Canberra, Canberra, Commonwealth Government Printer, 1955, p. 7

The general area defined in the Constitution, i.e. the Central Plateau, was very large. Cruls did not study the whole Plateau. He interpreted the expression "Central Plateau" as meaning the Central part of the Brazilian Plateau, thus eliminating the possibility of studying the whole Plateau. He went straight to the central area of the Brazilian Plateau and proceeded in the selection of the actual site for the Future Federal District.

But the Coelho Commission (appointed in 1947) did not give the same interpretation to the expression "Central Plateau".

Consequently the Commission felt that it should study the whole Brazilian Plateau, which covers about one third of Brazil.

The Commission had then to define a second-rank general area. The Commission actually selected two of these second-rank general areas; only after Congress decided between these two areas was it possible to take the second step, which was the selection of the actual site for the Future Federal District. In this second phase, the most advanced methods were used by Donald J. Belcher & Associates, Inc., in the selection of the site.

After such a variety of studies, all of which recommended the same area, it is not reasonable to question the convenience and adequacy of the present location of the Future Federal District.

Procedures for selecting the City's Plan: contests.-- The same kind of indecision which has characterized preconstruction periods in Brasilia, characterized initial construction periods in Canberra. Like the Brazilian New Capital, planning and construction of Canberra were not preceded by basic guiding investigations and the preparation of a General Plan to Move the Capital. If it were, much of the uncertainties of Canberra's initial years could have been avoided. The reader should have this in mind when, in subsequent sections of this dissertation, he reads about the administration of Canberra's construction.

Other contributing causes for Canberra's initial difficulties were excessive interference of government in non-governmental matters and wide variations in the policies of different governments. For the moment, the effect of such causes in the selection of Canberra's plan and in its contest, will be examined.

In 1911, the Australian Government organized an international contest for the design of a plan for Canberra. At the end of the registration period, 137 plans had been presented. The First Prize, of £1,750, was awarded to Walter Burley Griffin of Chicago. The Second Prize, of £750, to Eliel Saarinen of Helsingford, Finland, and the Third Prize, of £500, to D. Alf Agache of Paris.

The conditions for the contest included, among others, the following:

Condition No. 12. The designs delivered and admitted to the competition will be submitted to a board consisting of: an engineer, an architect and a licensed surveyor; appointed by the Governor in Council²⁷ for investigation and report to the Minister.²⁸

Condition No. 14. The Minister will adjudicate upon the designs admitted to competition after they have been submitted to the Board and such adjudication will be final and without appeal.²⁹

Condition No. 14, according to which a Minister of State would decide upon the winning plan, caused several protests. The Royal Institute of British Architects boycotted the contest. None of their members throughout the British Commonwealth of Nations was allowed to compete.

The contest was followed by deep disagreement among the members of the Board and between the Board and the Minister. The latter adopted the recommendations of two of the members of the board who were in disagreement with its chairman. This decision gave the prizes listed above. But the Minister was not satisfied and appointed another Board to report on several of the best designs presented. This Board said it was unable to recommend any of them and presented a design of its own.

²⁷ The Governor in Council is, in Australia, the Executive.

²⁸ The Minister of State, administering the Department of Home Affairs.

²⁹ Informations, Conditions and Particulars for Guidance in the Preparation of Competitive Designs for the Federal Capital City of the Commonwealth of Australia. Department of Home Affairs, Melbourne, April 30th, 1911.

This plan incorporated several features of the best designs presented. The Board's report was presented to Parliament and finally the Minister adopted the Board's plan. He also started immediately on construction works. A subsequent change in government brought new alterations. Griffin was invited to Australia to confer with the Board. Since no agreement could be reached between them, the Board was disbanded and Griffin's plan was again adopted. By 1920, construction works were well under way following Griffin's Plan and under his direction. In that year he left Australia and the government appointed the Federal Capital Advisory Committee to inquire into and advise upon the development of Canberra. One of the first acts of this Committee was to recommend a return to the Board's plan. Fortunately this recommendation was not followed.

As can be seen, final decisions concerning Canberra's plan were taken by governmental officials. Experts were given advisory powers only. It was argued that Griffin's plan was expensive and extravagant. The decision as to whether it was extravagant or not should have been made by experts. If it was costly but good, it might be worth the money spent.

The construction of New Towns of national importance is generally a very delicate matter, involving important decisions and responsibilities. Confusion is likely to arise

if authority and responsibilities are not properly assigned. Special care is necessary to avoid undue governmental interference. Governments should not interfere beyond the point of adopting general policies. In Canberra's case, for instance, the decision of abandoning Griffin's plan on the basis of its cost was not a matter of general policy. The reason for such a decision might have been. If the government decides to reduce expenditures, the agency in charge of planning and construction should be given notice of such decision. The agency should then be free to decide if a plan adopted should be abandoned, or if it should be carried out slowly and more economically, or whatever other solution the agency might find pertinent.

For the moment there is no indication that uncertainties concerning Brasilia's plan are likely to arise. Fortunately the Brazilian Government has interfered a minimum in the selection of the plan for Brasilia. The only member of the jury who was not an expert was NOVACAP's president. He was the jury's non-voting chairman.

Brazil was the first country to organize a national contest for the design of its National Capital. Other countries which have built new Capital Cities have organized either international contests or no contests at all. Tunisia seems to have chosen the latter alternative when it invited a Brazilian Architectural concern to prepare a plan for the New Tunisian Capital. This seems to be an undemocratic and

undesirable procedure. Contests have many advantages for the selecting of a plan for a Capital City. They stimulate debates, research and investigation and bring public participation. They offer a larger variety of plans and ideas. Consequently there are better chances for selecting a good plan than if only one plan is presented.

International contests, however, may be dangerous. A city, and especially a Capital City, is an organism that should be impregnated with national character. Its form, function and general organization must express and fit a certain people. A planner may be unable to prepare a satisfactory plan for a foreign city unless he spends a long time participating in, and studying local ways of life, politics, laws and many other aspects of the country in which he is going to work.

Chandigarh, the new Capital City of Pundjab, India, is an example of the dangers of directly applying to a country the ideas and planning principles of another. In this case, the results were aggravated by the fact that the foreign ideas were also utopian.

Le Corbusier's plan for Chandigarh is not working as he expected. It would work fine if all Chandigarhans thought as Le Corbusier does. The people are not behaving as the architect wanted them to behave. They are not walking on the footpaths Le Corbusier wanted them to walk. They are not parking their automobiles on the spaces provided for such use. They

are not happy in the houses Le Corbusier designed for them.

Brasilia's Plan.-- In modern times there has been no sizable New Town built as far away from civilization as is Brasilia. This peculiarity gives to the New Brazilian Capital the character of a pioneering adventure. It also makes the preparation of plans for the city completely different from the planning of New Towns in developed area.

When planning a New Town in Britain, in America or in a developed area in Brazil, the planner has many elements to base his plan upon. There is an existing pattern of transportation routes, and a certain distribution of urban centers and population. Regional economic characteristics are known. It is possible to have an idea of the forces that will shape the New Town and affect its development.

In Brasilia, those elements are so negligible and are expected to change so radically that they can be considered as non-existent. In the next few years the growth of Brasilia will not be deeply affected by regional economic and demographic forces. The city's impact on its region will be the significant factor.

These considerations would have been of primary importance in the preparation of Brasilia's plan. It might have been easier to design the city since the planner was free from man made features that might limit his freedom. But this freedom could be dangerous.

Once the city's layout has been prepared, some difficult questions may come up. To what extent will the regional forces that Brasilia creates tend to change the city's shape from the shape planned? The growth of surrounding towns, the pattern of transportation routes, and especially the directions of regional traffic flows can affect the growth of the city in directions which are contrary to its plan. Brasilia may become like the sorcerer's apprentice who was unable to control the forces that he, himself, had generated.

To cope with this situation, the plan for Brasilia should be simple and flexible. It should be easily adaptable to changing conditions. At the beginning, two kinds of plans were possible in connection with Brasilia.

The first would have been a broad long-range plan for the regional development of the Central Plateau. It would have been a plan to be carried out by the Federal Government, according to its plans (such as the National Transportation Plan) and development policies. Such a plan would not have been dependent on the forecasting of future regional conditions, since it was expected to have contributed to the "creation" of the region, so to speak. It could have dealt with such matters as: improvements in river navigation; highways and railroads; development of agriculture, livestock and industry at a regional level; and construction of regionally important power plants. It would not be possible, for the moment, to make a useful forecast of future effects of this plan on such regional characteristics

as: the pattern of urbanization; the distribution of population and economic activity; the kinds of industries that would be attracted to the area; the kinds of labor force and raw materials such industries would use; the relations between industries and agriculture; and other similar questions. Only if based on such characteristics would it be possible to prepare a plan for future regional economic balance, desirable distribution of rural and urban population, employment opportunities and the like. For a short period, however, the economy of the Future Federal District would likely remain dependent upon agriculture, and therefore economically unbalanced.

The second type of plan would have been the plan for Brasilia and the Future Federal District. It would include the city's basic layout; a sketch land use plan; a plan for the development of construction works, eventually according to stages; a plan for the development of agriculture; and so on. It would have been the General Plan for Moving the Capital, or Brasilia's Long-Range Comprehensive Plan.

For the moment, discussion will be limited to the design aspects of this plan.

If the future regional characteristics mentioned above cannot be usefully forecasted now, the plan for Brasilia should not include elements which would depend on them. If the Commission for Planning, Building and Moving the Federal Capital had been aware of this fact, it would not have included in the

contest conditions several topics in the list of elements that competitors could present to support their plans. Since the Commission included those topics, it must have considered it possible to determine those elements; (the author has in mind especially the topics "regional economic balance", "employment opportunities for the whole population" and "desirable distribution of population in rural and urban areas")

For the moment, the plan for Brasilia cannot be like a plan for a New Town in a developed area. It can not include plans for regional economic balance, employment opportunities and distribution of population. The elements will only affect Brasilia in a distant future and are, for the moment, unforeseeable. Besides, they are all directly dependent upon industrial development. In the near future, the Federal District is likely to have no substantial industrial development.³⁰

As was said, Mr. Costa had a correct basic approach to the problem of designing Brasilia.

One of the lessons to be learned from the American and British New Towns is the inadequacy of artificial and "revolutionary" solutions for urban problems. Those towns were

³⁰ It should be remembered that the Future Federal District has an area of about 2,250 square miles, i.e. a little larger than the State of Delaware. Several urban centers are expected to develop within it, besides Brasilia. Some of these urban centers could eventually be industrial towns.

planned with no preoccupation of designing the "city of the 21st century". Their plans were very simple.

Clover leaves, complicated grade separations or elevated avenues are extreme attempts to solve problems of existing cities. Most American cities would rather not have the need for them. The designer of a brand new city should not try to use those solutions as if they were the most advanced achievements of modern town planning. They should be avoided, not sought.

Mr. Costa has channeled traffic too much. This has led him to use several grade separations, one of which is quite complicated (the one where the two axis cross). Consequently his plan requires an enormous amount of earth movement.

In the next few years, the rate of automobile ownership in Brazil is likely to increase in geometric proportions. Brasilia will probably become a center of convergence of important highways. If all of them are connected with the Highway Residential Axis, this artery is likely to become overcrowded very soon, as has happened with most expressways in America. On the other hand, Brasilia's general shape is not easily adaptable to the convergence of highways at points other than the extremities of the Highway Residential Axis. Other thoroughfares should be planned to alleviate concentration of traffic.

One of the basic assumptions of the Costa Plan has been that the bulk of the population will live in multifamily buildings located along the Highway-Residential Axis. Mr. Costa did not plan the super blocks for single-family residences. This is an unrealistic assumption. The fact that in Rio de Janeiro a very large proportion of the population lives in multi-family buildings does not mean that the same will happen in Brasília. A planner should not go to the extreme of planning the type of dwellings. Families should be free to choose the kind of residence they would like to live in. There has been no research to determine the demand for different types of dwellings to be built in Brasília.

Another respect in which Brasília differs from other New Towns is the limitation of size.

The British New Towns, for instance, are economic satellites, although self contained. The economic determinants of their size (mainly amount of industry) can be fairly well determined in advance. It has been equally possible to determine why their size should be limited, (according to the British policies of planned decentralization and restriction of suburban sprawl).

The assumption that Brasília's ultimate population will be half a million should not be taken too seriously.

It is now (and for a long time it will probably continue to be) impossible to forecast Brasília's optimum size. The

city's size will depend mainly on the intensity of governmental activity and, consequently, on employment opportunities provided by the Federal Government. The functions and activities of the Federal Government are expected to expand considerably as Brazil prospers and grows. In order to determine the maximum size of Brasilia it would be necessary to determine the maximum activity and employment opportunities of the Federal Government. This would not be feasible.

The problem of expansion of activities of the Federal Government is clearly shown in Washington D. C. where the premises occupied by the Federal Government have expanded tremendously during the last decades. There has been an increasing demand for facilities to meet the expanding needs of existing governmental bodies and the needs of newly created ones.

In Brasilia, as in Washington D. C., the efficiency of governmental works should be the main factor in determining whether new facilities should be located in the Capital City, itself, in a neighboring town or elsewhere in the country. In any case, the plan for a New Capital should provide for the expansion of the facilities occupied by the Federal Government. Mr. Costa seems not to have given serious thought to this problem. The Plaza of the Three Powers blocks the expansion of the Government Center to the east. It is definitely the end of the Mall. Any expansion to the east would

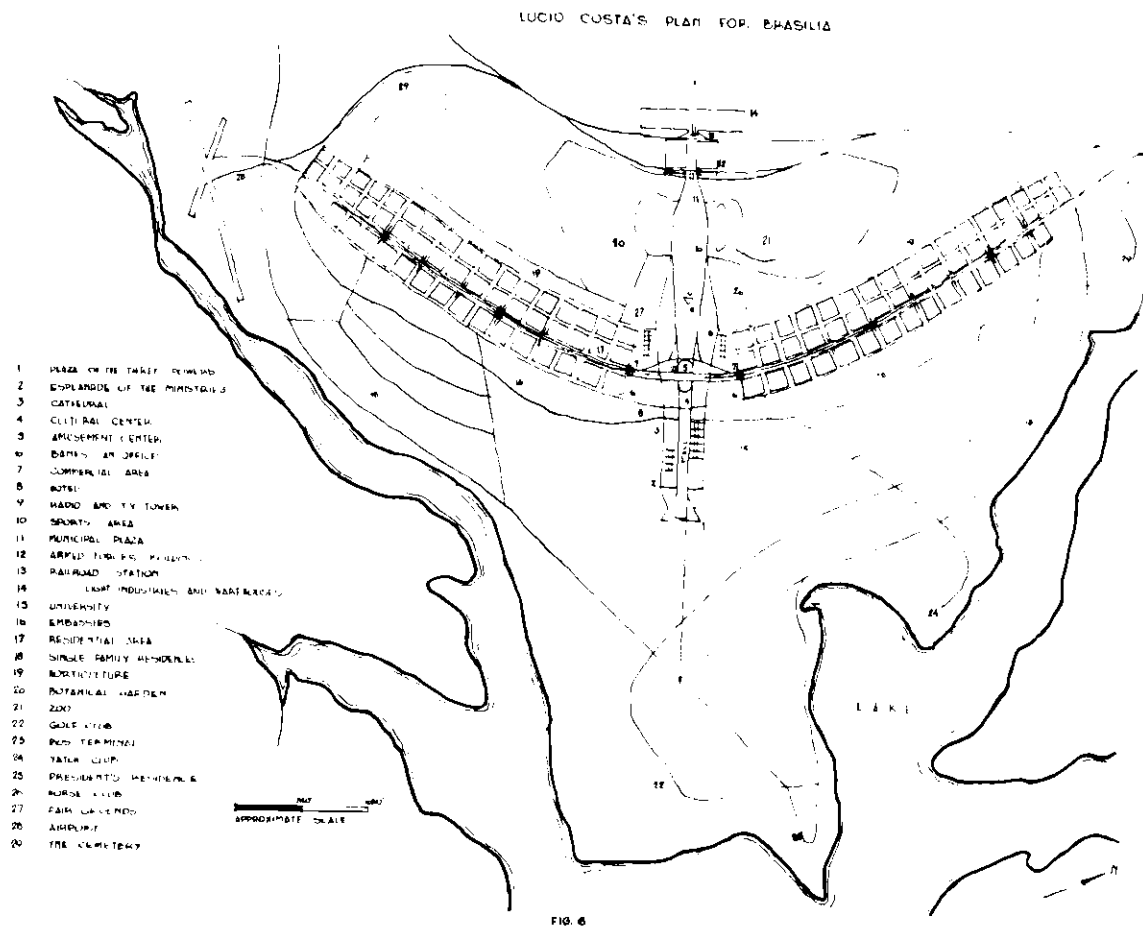


Fig. 6., Brasilia's Plan

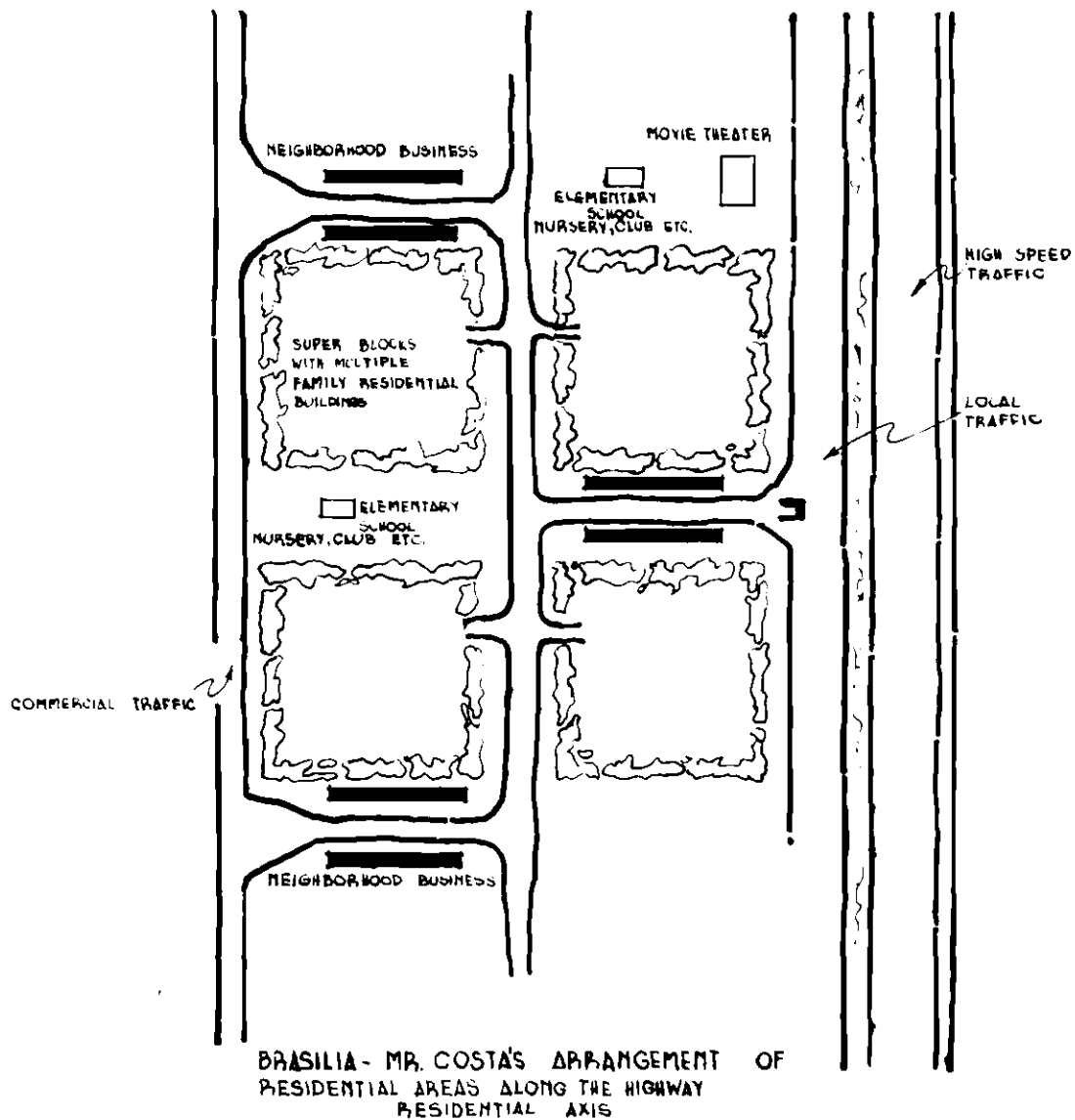


FIG. 7

Fig. 7, Brasilia's Plan

make the plaza lose its prominent position. Expansion to the west is equally impossible since the Monumental Axis is already occupied by commercial and industrial areas, the Municipal Center and so on. The area north of the Mall is occupied by the University. The only area left for expansion of the Government Center is to the south of the mall. However this eventual expansion would be unbalanced and not within the spirit of the Costa Plan. The Government Center would lose much of the unity of conception.

Because of lack of details in the Costa Plan, most of the planning for Brasilia is still to be done. Mr. Costa has presented little more than a basic idea. This fact adds to the responsibility of NOVACAP as a planning agency. It has been most fortunate that Mr. Costa has agreed to work in the development of his plan.

Administration of Construction Works and Planning

Suitable agencies to administer construction and planning.--

As was said before, the problem of building a new Capital City for Brazil goes far beyond the problem of the construction of a city to house the Federal Government. The problem is basically connected with the whole national development. It directly affects, and is affected by, the program and policies of the Federal Government.

The construction of Brasilia should be, as it is, directly

carried out by the Federal Government. It is here assumed, without much debate, that Brazil's new Capital should not be built by a private agency.

In modern times, most New Towns of national importance have been built by public agencies. When the Reith Committee examined the possible kinds of agencies that could build the British New Towns, it came to the conclusion that an ordinary commercial enterprise was inappropriate to do the job. The Committee strongly recommended the creation of public corporations, either government or local-authority sponsored. It made the basic characteristics of such agencies very clear when it said:

We assume that such corporation will be invested with sufficient powers to enable it to carry out its task, free from administrative control and consequent interference which are necessarily associated with full and direct government responsibility. The appropriate Minister should have the power to give such directions as he may, from time to time, consider necessary in the public interest in any matter of major policy. Subject to that, the corporation must have freedom of action comparable with that of a commercial undertaking.³¹

The British Government (Labor Party) disregarded the recommendation about the local-authority-sponsored corporation and adopted only the government sponsored type.

The New Towns Development Corporations, established under the New Towns Act of 1946, have the function of planning,

³¹ New Towns Committee, Interim Report of the New Towns Committee, London, His Majesty's Stationary Office, 1946, Cmd. 6759, p. 9.

building and for a period managing the New Towns. Financing, in the form of loans and grants, is the responsibility of the central government. The Corporations do not have authority to borrow money. They have compulsory purchasing powers and full development powers. They can build houses, shops, factories, utility lines, roads and so on. The Corporation consists of a chairman, a deputy chairman and not more than seven other members who direct a small professional staff. However they are not directly building the New Towns. Contractors are widely used.

Although the British New Towns have received considerable criticism, very little of this criticism has been directed against the type of agency that has been chosen to build the towns.

The British Government has failed to give the Corporation the "freedom of action comparable with that of a commercial undertaking". Their relations with other governmental bodies are most complex. They must secure approval of, and consult with a large number of local authorities, Ministries and other agencies, before they make several of their decisions.

If the British New Towns have failed to decentralize London and other large cities, due to nation-wide economic difficulties not enough money has been available for the construction of New Towns, if there has been no central agency with power to plan an overall development scheme for the whole

country, the fact that the New Towns are being built by Public Corporations financed by the Exchequer has not been even a contributing cause to these failures. Quite to the contrary, the British New Towns have shown that to carry out such a gigantic task, a Public Corporation is an efficient type of agency.

Canberra offers a variety of experiments in the administration of the construction of a New Town.

When Griffin came to Australia he was made Capital Director of Design and Construction and was responsible for a limited amount of work. Construction and administration were the responsibility of governmental departments. Until 1916 the construction of Canberra had developed very slowly. The whole work was under the direction of the Minister of Home Affairs. General administration was placed in the hands of an Administrator; design and construction were the responsibility of the Commonwealth Director-General of Works while land and surveying were the responsibility of the Director of the Commonwealth Land and Surveys. In 1916 this organization was changed. The Department of Home and Territories became responsible for administration and the Department of Works and Railways for construction.

Griffin seems to have been quite an impulsive man. His relations with the departments were not very friendly. Despite this fact, construction works speeded up. After he left Australia, the Federal Capital Advisory Committee was appointed

to inquire into and advise upon the development of Canberra. The members of this Committee were engineers and architects and they prepared a program for the construction of the Capital. However, the Committee had advisory powers only. Some of its recommendations were followed.

In 1924, the Committee was abolished and the Federal Capital Commission was created. This Commission made clear that sharing the responsibility of administration and construction among several governmental departments was not a satisfactory organization.

The Commission was given wide powers. It could manage land, levy rates, and carry out construction. Subject to Parliamentary approval, it could make loans. It created its own organization and labor force. In 1926 the Commission's powers were further expanded to include education, police protection, urban transportation, and other similar municipal functions. In 1927 Parliament moved into Canberra and the city officially became the National Capital. In 1930, the Commission was abolished, and the administration of the Territory reverted to the departmental system. This shift was the result of a governmental change. The Labor Government had just come into power and had expressed its objection to commissions. One of the criticisms of the Commission was that most of its machinery was a duplication of what already existed in the Federal Departments.

This time, however, a more serious attempt was made to coordinate the works of the different departments. General administration was under the Minister of Home Affairs. Health programs were under the Department of Health, the Department of Works was responsible for engineering services and construction, and the Attorney General, for courts and police protection. A Civic Administrator was appointed to advise on general policies and to determine whether development was in accordance with the approved plan. The Civic Administrator was also the chairman of an Administrative Council consisting of representatives of the several Departments. The Council had the function of advising the Minister of Home Affairs on matters related to the Territory.

This administrative set up has persisted with minor changes up to now, and is basically Canberra's local government.

Today, there is general dissatisfaction in Australia about the way its Capital City has developed. The Report of the Senate Committee appointed to inquire into and report upon the development of the city clearly states that "Canberra has failed to develop as the administrative center of the Commonwealth".³²

³²Report from the Select Committee to Inquire into and Report upon the Development of Canberra, Canberra, Commonwealth Government Printer, 1955. p. 23.

The construction of the Australian Capital has been carried out under an unstable administrative set-up. Frequent government interferences, have, from time to time, completely changed the organization previously established. Except for the Federal Capital Commission, there has been no agency with the specific and sole function of developing the city. Under its administration, Canberra developed faster and took the shape of a city. The use of several departments to build the city did not produce satisfactory results. Equally unsatisfactory was the appointment from time to time, of Advisory Committees to prepare a program for the development of the city. These Committees proved to be more harmful than useful, because of the variety of contradictory recommendations. Governments have been unable to maintain administrative continuity.

A common point in most complaints about Canberra's development has been the lack of unified authority and insufficiency of powers given to responsible agencies.

Under such unstable conditions, it was impossible to prepare long range comprehensive plans. Canberra has had several development programs; but -- and this is to be expected -- they changed as frequently as the bodies that prepared them.

This writer does not hesitate to say that these faults have been basically responsible for the slowness of Canberra's

construction. Canberra (like Washington D. C.) has been, and still is, called "A Plan Without a City". Works started more than forty years ago. In 1952, the population of the Federal Territory was only 28,481. In 1955 (twenty years after Parliament had moved to Canberra) there were still several departments of the Federal Government left in Melbourne. This slowness made construction works expensive and disturbed the efficiency of the Federal Government.

Washington D. C. like Canberra, has suffered from the lack of stable and continuous administration. During the first half of the nineteenth century there were not even Commissions or Committees to direct the development of the American Capital. As a result, L'Enfant's plan was not accurately followed and by 1850 it was almost forgotten. By the end of the Civil War, construction had reached the limits of the area planned by the French engineer. There was no authority or agency to prepare and enforce a plan for the expansion of that area. Washington D. C. grew haphazardly. Streets were opened and subdivisions laid out with no regard to L'Enfant's plan. In 1893, the Highway Commission was created and some planning was done for Washington's surroundings. Several other Commissions have succeeded the Highway Commission. The functions of these Commissions were those of a regular City Planning Commission. Washington's problems were no longer the specific problems of a New Town.

As far as administration is concerned, privately built

New Towns have been quite successful. Of course, their administrative problems were generally more simple than those of government-built New Towns. Their builders were not so much responsible to the public, to politicians and to legislators. Their relationships with other agencies, either private or public, were less complex. But to some extent the success in the administration of privately built New Towns was due to continuity and unification of authority.

A quick look at the evolution of the administration of New Towns shows a very clear trend. The trend has been toward unifying the different functions under a single agency to which it is given more and more power. In this respect, government-built New Towns are profiting from the experience of privately built ones.

The statement made by the Reith Committee to the effect that Development Corporations should have the freedom of action comparable to that of a private agency is significant.

The construction of New Towns of national importance is a task complex enough to justify the creation of an agency with the specific and only function of administering the planning and building of the city.

The method of distributing among existing departments the responsibility of developing a New Town -- and especially a Capital City -- should be avoided. Basically this method

ignores the magnitude of the problem. It reflects the idea that the construction of such a city is just extra work to be added to the work that is already being carried out by the departments, as if the construction of an important New Town were a job of the same magnitude as the regular departmental works. Besides, it is generally troublesome to integrate and coordinate the functions of different departments.

The use of Advisory Committees as a body to coordinate work, unify authority or prepare long range development programs of a single New Town should be discouraged. Authority cannot be unified, a plan cannot be carried out by a body with advisory powers only.

The concentration of responsibilities for planning, construction and administration under one single agency is basically connected with the stability of administration. Whenever responsibility and authority are distributed among several bodies, overlappings and misunderstandings are likely to arise. The overall organization becomes weak and therefore is subject to frequent interferences from higher authorities. Under such conditions it is more difficult to prepare long range comprehensive plans.

The existence of a single agency with the specific and sole function of building the city; the powers given to the agency; unification of authority; stability of administration; degree of governmental interference; and preparation of a long range comprehensive plan, are factors that are interdependent.

They seem to form a kind of a system where one part requires the existence of all the others. The absence or malfunctioning of one part is reflected upon all the others.

It is difficult for instance, to prepare a long range comprehensive plan, if there is no single agency, if authority is not unified, if government interferes frequently and so on. Conversely, the lack of a long range plan contributes to the instability of the administration, to the weakening of authority and consequently to increasing governmental interference.

For a moment it seemed that the Brazilian Government intended to assign to a Commission, the functions of planning, building and moving the Federal Capital. The decision of dissolving the Commission for Planning, Building and Moving the Federal Capital and replacing it by a corporation was a wise one, although taken at the wrong time. The Commission should have been given enough time to prepare the General Plan for Moving the Capital.

Probably, this Commission would not have been an efficient agency to carry out its title-task.

Commissions have not proved to be a satisfactory kind of agency to build New Towns of national importance. The job requires an amount of work that unpaid commissioners (as were the members of the Commission for Planning, Building and Moving the Federal Capital) are unable to do. Commissions are generally too weak to carry out a work that requires wide powers and administrative independence. Consequently

they are frequently dissolved and replaced, as they have been during Brasilia's pre-construction stages.

On the basis of the way Brasilia has been administered up to now, it seems that NOVACAP has met most basic requirements for an efficient performance of its functions. The Corporation has been given enough powers, authority is unified and government has interfered only on general policy matters.

As to the other requirements, one can only hope. NOVACAP was not completely tested nor have been future governments. The Corporation has not yet passed through one of the most critical stages that a New Town's public agency can experience, i.e. a change in government.

In 1958, there will be Congressional elections in Brazil, and, in 1960, Presidential elections. A new President will take office since in Brazil the President cannot succeed himself. It is possible -- and it is also very probable -- that new policies will be adopted for the development of Brasilia. Of course, construction work in the New Capital cannot, and should not, remain immune to changes in governmental policies.

The next few years will probably be the most decisive in Brasilia's early stages. Much of the success of initial construction work will depend on the extent to which it will be affected by the actions of the new government. It is hoped that future governments will not interfere beyond the stage of establishing general policies. NOVACAP should be free to organize

its own work according to the new policies adopted.

However, NOVACAP is still lacking one of the basic requirements necessary for a successful performance of its functions. The Corporation has not prepared a long range comprehensive plan for the development of Brasilia. Thorough investigation of problems related to planning, building and moving the Federal Capital and the preparation of a long range comprehensive plan are badly needed. The overall administrative system is lacking one of its important parts. The Corporation is not yet, in this respect, well enough prepared to face governmental change.

If such a plan is prepared, and if it is sufficiently publicized, it is likely to influence future governmental action. Government is likely to be more cautious in those decisions that are in sharp contradiction with existing plans. The same safe guard is not likely to exist with an absence of long-range planning. Each government will think that it has "The Solution" for the New Capital problems. Brasilia would then progress by rules of thumb or by "trial and error" methods instead of following a carefully prepared general plan.

The method of making agreements to bring under NOVACAP's responsibility the work of other federal agencies is a commendable one. There would not be unification of authority and responsibility if works which Brasilia's construction depends upon were carried out by federal agencies completely

independent from NOVACAP.

However, such procedure may involve some administrative complications. There are actually three bodies involved in some of the works made under agreement. A federal agency (a Ministry for example) which contracts with NOVACAP for the execution of the work; on the other hand the Corporation sub-contracts the work with a private concern. The latter has to report to, and be supervised by the Corporation, and NOVACAP has to report to, and be supervised by a federal agency. The smallest possible number of sub-contractors should be used to simplify supervision. This is not the procedure that is being followed by NOVACAP. Five sub-contractors are working in the construction of the Brasilia-Anapolis Highway, which is only one hundred miles long. The Corporation came to the conclusion that it was the fastest way of building the highway. If this method is carried to extremes, NOVACAP is likely to have considerable trouble in supervising dozens of sub-contractors while reporting to federal agencies.

Other types of agreements made, avoid the problem of duplication of machinery that was criticized in Canberra. There is no need to create in NOVACAP an organization to carry out a work, the execution of which can be efficiently undertaken by an existing agency. NOVACAP remains responsible for the job, although it is carried out by, or with the assistance of, a federal agency. The agreements establish the responsibilities of both agencies, standards to be followed, time limits and

so forth. It was under this type of agreement that the Agricultural Technical Office of the Ministry of Agriculture has prepared and is carrying out a plan for the development of agriculture and livestock in the New Federal District.

Agency's internal organization.-- The British Development Corporations are basically administrative and planning agencies. Actual construction works are handed to contractors. The Corporations have two main bodies: a governing body and an implementing body, i.e. a staff. The Reith Committee recommended that the members of the governing body should be chosen among men with experience in land development, labor relations, economic and social problems, business and local government. The Corporations' staffs generally include a General Manager, a Secretary and Legal Adviser, a Chief Architect, a Planning Officer, and aids. There is a clear separation between the governing body, which establishes general policies and makes the decisions, and the implementation body.

The need for such differentiation has been felt in recent years. The builders of Kitimat emphasized this point when they said they adopted a new and modern use of experts, i.e. a unique double command at the head. There was a planning consultant and his aids concerned solely with the overall policy and guidance and a physical planning team concerned with implementation. However, the implementing body should

be equipped to take care of more than just the physical aspects of the town. Implementation also involves financial, legal administrative and other aspects. Therefore the implementing body should include departments of officers dealing with such matters.

With minor changes, this dual set up is found in NOVACAP. The Directory establishes general policies and makes important decisions. The technical departments are the implementing body. The members of the directory are not directors of the technical departments. The Administrative Council is a deliberative organ. It has no initiative of its own, except to make suggestions about the Corporation's efficiency. All its other functions are to decide on matters presented to it by the Directory. The Council may either approve or disapprove, but not interfere in those matters. The problems that require the Council's decision are not questions of general policy but procedural matters as bidding, purchase of equipment and the like.

The three Directors are: the Technical, the Administrative, and the Financial Director. They are men with wide participation in public life, and with experience in administration, government, legislation and real estate management.

Under the light of the experience in the administration of construction of New Towns, there seems to be no serious fault in the administrative structure that was organized to build Brasilia. In the case of uncertainties about the present

administrative set up, it would be wiser to try to refine it, than to change completely the whole organization.

Financial and Land Policies

Although the British Development Corporations cannot raise their own funds, their financing has been stable enough to permit the preparation of long-range financial plans. Loans are steadily advanced by the Minister who, besides loans, may make grants if a Corporation needs extra funds. Only these grants are dependent upon money provided by Parliament and are, therefore, subject to periodical fluctuations.

It has already been shown how financial considerations have affected the selection of Canberra's plan. Inadequate financial practices have disturbed the construction of the Australian Capital as much as inadequate administrative practices. During most of the time, financing of Canberra's construction was made through budget appropriations annually voted by Parliament.

This method has been severely criticized because the builders of the city never knew how much money would be voted by Parliament for the financing of the city's construction.

Only when the Federal Capital Commission was appointed did it become possible to prepare a long range financial plan and consequently a long range comprehensive plan. In 1930

when the Commission was abolished, the previous financial methods were adopted and the same difficulties appeared again.

It is interesting to compare two opinions concerning these two different financial policies and to see how deeply financial methods affect overall planning. The 1955 Senate Committee referring to financial methods used during the Commission's administration ... notes that the one period in Canberra's history when development was sustained without flagging or failing was when the Federal Capital Commission was in control. The Commission was able to carry out its programme without regard to fluctuations in annual appropriations by Parliament.³³

After 1930, annual review of financial policy has led to the continuous postponement of important works and the maintenance of a balanced programme, based upon a coordinated scheme, has been impracticable.³⁴

Up to a certain point, continuity and stability of financing are more important than the amount of money provided. Without knowing what future financial resources one can count on, it is impossible to plan ahead.

Whenever governments undertake a development which requires large expenditures, the matter is almost sure to become most inflammable. It is therefore very difficult to assure continuity and stability of financing, when funds are subject

³³Op. cit. p. 18

³⁴Canberra; A Nation's Capital, H. L. White, Sydney, Angus and Robertson, 1954, p. 53

to periodical review by a legislative body.

The construction of New Towns cannot be made with an eye on quick profit. Heavy initial expenditures have to be made. Services and construction have to be provided far in advance of full use. Materials, utilities and buildings will for a long time, constitute frozen capital until growth has proceeded to a point of optimum utilization. New Towns require long-term, large scale, bold financing. Sometimes an easy answer can be found to financial questions.

In Chandigarh the economics were extremely simple. It was simply a question of adding up the cost of roads, public services, and social services such as schools, community centers, clinics, official buildings etc. and divide the total among land which remained to be sold to the public.³⁵

But unfortunately, simple answers to complex problems are not always the proper ones.

The British Government expects to get back most of the money it has spent in the New Towns, without selling the land. It has been careful to approve the advance of funds only for developments that are likely to secure a reasonable return. Most funds (except for grants) are made in the form of loans, and therefore are to be repaid. By 1956, of the twelve New Towns in England and Wales designated between 1946 and 1950, six were already showing surplus in revenue

³⁵ "Housing in Chandigarh, Pundjab's New Capital", News Sheet of the International Federation of Housing and Town Planning, February 1956, p. 30.

account. Revenues to the Corporations come from rents of leased land, houses, shops, and industrial buildings. The Corporations are the ones that profit from the increase in land value that they create.

As far as ownership of land is concerned, New Towns are profiting from the experience of old towns. Land is publicly owned in all British New Towns. Public ownership has proved to be the most effective way of controlling the growth of cities. It is often said that regulations such as zoning and subdivision regulations should not be of restrictive character only, but should positively orient the growth of cities. But the fact is that this has been impossible to achieve under private ownership of land. Under such conditions no solution is likely to be found to one of the most troublesome problems concerning the growth of cities, i.e. timing and location of new subdivisions.

The orderly development of a New Town needs special attention. There is a plan to be followed, a schedule for the provision of utilities, commercial facilities, services and so on. After the town is "completed" a New Town shares with the old ones the problem of guiding growth. If the town is to be of limited size, there is the problem of guiding change.

Canberra has also adopted the system of public ownership of land. Up to now, there has not been the slightest indication

that such a system has contributed to Canberra's difficulties. Canberra's development policies have been most controversial. It is significant that no criticism or complaint has been made against the land policy adopted. Although Canberra's financial problems were widely debated in Australia, no attempt was made to solve them by selling the city's land.

Rural land has been leased for a period not exceeding twenty five years at 5 per cent per annum.

During Canberra's early years, constant pressure was exercised on Government to make urban land available for development by private enterprise. However it was decided that no land would be leased before water, sewerage, electricity, paved and tree-planted streets and other facilities were provided. The idea was that better rents could be obtained from lots after those facilities had been provided. Here is a wise decision and an example of a case showing how to obtain maximum revenue from the city's land.

Urban lots in Canberra were leased for no more than ninety nine years at 5 per cent per annum of improved capital value of the land.

The Brazilian Government seems to be conscious of the fact that the construction of Brasilia needs large-scale, long range bold financing. NOVACAP was given substantial funds and wide financial powers. The Government has made loans to the Corporation and Ministries are spending money from their budgets.

In spite of Brazil's prosperity at the present time, the country's economic conditions are far from satisfactory. Public opinion is reluctant to accept Government's bold financing policies in relation to Brasilia. The cost of the city is, today, the most debated problem in Brazil. The Federal Government is strongly criticized for the huge sums of money that are being spent in Brasília.

The relationships between Brasilia's expenditures and Brazil's economic difficulties fall outside the scope of this work. But with regard to such relationships and their importance, a few points must be emphasized.

Considering Brasilia from the point of view of an instrument of national development, the city's construction is worth the money that is being spent. Brasilia is not a luxury. Because of the New Capital, new railroads, highways, power plants and so on, which are of paramount importance to the development of Brazil, are being or will be built.

Profits may not be shown in the near future, but there will be plenty in a not very distant one.

It is of vital importance that NOVACAP's present financial independence be maintained. The government may cut out future extra loans to the Corporation; it may reduce expenditures made by Ministries on works related to Brasilia (always bearing in mind the effect of such works on the construction of the city); but NOVACAP should at least be able to count on

its own financial resources to maintain a minimum continuity and stability of financing, enough for the preparation of long-range financial plans.

Drastic reductions in the initial expenditures are very likely to be a false economy. To some extent, the longer the construction period of the town, the more expensive it will be. Disturbance in the efficiency of the Federal Government, if caused by delays and interruptions resulting from the transfer of the Capital, may prove to be very expensive.

Public ownership of land is as unpopular in Brazil as it is in the United States. However the criticism made about Brasilia's cost have contributed even more to the Government's decision to sell land in the New Capital. The Federal Government had to have a quick answer to refute the attacks on its large expenditures. It also had to show, as soon as possible, some revenue derived from construction works. The quick answer was that the sale of lots in Brasilia would pay for the city's cost, and land would be sold as soon as possible. But still some control of the city's development can be achieved if the government keeps most of Brasilia's urban land under public ownership. There is still time for that.

Land policies adopted concerning rural lands in the New Federal District are quite satisfactory. There seems to be no reason why the same policies should not be adopted

either in Brasilia or in other urban centers that will eventually be developed in the Future Federal District.

Long Range Planning

New Towns, more than existing ones, have the opportunity of carefully preparing and following a long-range comprehensive plan. In many cases the town's function offers clear elements on which to base the preparation of an overall planning program. These elements make possible the establishment of stages and of a schedule for construction works.

This happens especially in privately built New Towns. If the town is built by a real estate agency, the long range plan, the stages, and the schedule of construction are generally based on financial considerations. They are dependent upon the amount of money the developer is willing to invest progressively, on risk factors and on the revenue the builder would expect to derive from the town at each stage.

In New Towns built by industries, very often the town construction stages are directly connected with the stages of construction of the industry itself. Future plans for expansion of the town are prepared according to future plans for the expansion of the industry. A whole program for the development of the town is then evolved based on the stages of the construction of the industry. At each phase, the industry needs a certain number of workers. These workers and their dependents

determine the population directly dependent upon the industry that is building the town. This population can be called "base population" since it is directly connected with the town's economic base, i.e. the developing industry.

But this population needs shops, movie theatres, hospitals, banks and so. These facilities would be operated by a population that is not directly dependent on the industry. This population would be the "service population".

Both types of population would give an approximate idea of the town's total population at each stage. Based on the needs of the total population at each phase of construction, it would be possible to plan the whole town by stages. Such needs will determine the types and number of houses, schools, social facilities, business services, utilities and so on.

Whenever the factors which determine the New Town's construction stages can be more or less clearly defined, it becomes less difficult to prepare and follow a long range comprehensive plan for the town.

Many of the difficulties of the British New Towns have derived from the impossibility of defining these factors. If planning and building by stages were possible in the British New Towns, the stages would have to be based on the construction of industries in the town. But the Development Corporations never know far enough in advance when an industry is moving to town. They do not know the size of the industry, the size and

type of its labor force, and many other characteristics that would directly affect the New Town's population. Under such conditions, the preparation of long range comprehensive plans offer extra difficulties.

Whether based on stages or not, the construction of a New Town cannot be efficiently carried out without the preparation of a long range comprehensive plan.

Up to now, lack of overall planning has been Brasilia's weakest point. As was said before, the General Plan for Moving the Capital was never completed. The preparation of plans for the transfer of the Federal Government from Rio de Janeiro to Brasilia was several times postponed. The preparation of such plan has been successively the function of the Commission for the Location of the New Capital, of the Commission for Planning, Building and Moving the Federal Capital, and is now the function of a Committee appointed by the President of the Republic.

Three major permanent works were started in Brasilia before the selection of the plan for the city.

After the plan was selected, construction works were started without the guidance of overall planning. Thousands of dwelling units, recreation and commercial facilities are being built with no regard to the characteristics of the city's initial population.

Brasilia belongs to the kind of New Town for which it is possible, and highly desirable to prepare a long range comprehensive plan based on stages.

In the case of the New Brazilian Capital, the factors on which to base construction stages would be less difficult to determine and control than in most New Towns. Such factors would be the stages of the transfer of the Federal Government, its personnel, and material.

The studies for the transfer of the Federal Government from Rio de Janeiro to Brasilia, now under way, should be presented to NOVACAP in the form of a plan clearly showing the stages and desirable schedule of transfer. The Corporation should be heard in connection with the preparation of this plan and should make suggestions. The Corporation's financial, administrative and technical capacities, should be taken in consideration.

Once the plan for the transfer of the Federal Government is adopted, it would be made part of, and used in the preparation of a long range comprehensive plan for the construction of Brasilia. It would be possible to estimate the "base" and the "service population" at each stage and plan for the needs of such population.

Such a plan would include financial, administrative and physical planning, for each stage. It would be prepared by NOVACAP's staff under the coordination and supervision of the Corporation's Directory.

Financial planning in Brazil is a troublesome problem. Perpetual inflation keeps lowering the value of the Brazilian

currency, and long range financial planning is very difficult. However, it would be possible to study a way of taking this devaluation in consideration and make financial planning possible although subject to constant corrections; after all, every long range plan has to be constantly reviewed. Despite their inaccuracy they are indispensable and better than no planning at all.

An important part of the overall plan would be the preparation of Brasilia's Master Plan along the lines of those prepared by, or for the British Development Corporations before they start building a New Town.³⁶ This Master Plan would be an elaboration or detailing of the Costa Plan. It would include a more accurate delimitation and planning of the different areas of the city, a land use plan and a more accurate layout of streets and open spaces. Of course, such plan would be just a draft and would be equally subject to constant review.

Detailed design should be carried out just before construction. It would therefore depend on a pre-established schedule.

It is inevitable that minor changes will have to be made on the Master Plan as the city develops. Economic changes bring changes in ways of life and on people's habits, and

³⁶For good examples of such plan, see: Harlow Development Corporation, Harlow New Town, Master Plan, 2nd ed. Harlow, The Corporation, 1952; and Basildon Development Corporation, Basildon New Town; An Introduction to the Draft Master Plan, Pitsea, Essex, The Corporation, 1950.

consequently the city has to change. New planning ideas must be developed to keep up with such changes.

When Griffin planned Canberra he provided for commercial strip development along major streets. As urban conditions changed this arrangement proved to be unsightly, dangerous and inefficient. Changes had to be made in the whole land-use plan for Canberra to provide for higher concentration of commercial land use.

Such changes are unforeseeable. Similar alterations are likely to become necessary in Brasília since urban ways of life in Brazil are undergoing deep and quick changes.

NOVACAP is capable enough to look after the development of the Costa Plan and make minor changes when necessary. There would be no need to appoint Committees to check if the plan is being followed; if the Corporation is technically capable, supervision on technical matters is unnecessary. As to problems of general policy, NOVACAP is being, and surely will continue to be well supervised by the public, by the press, by Congress and by the Executive. Such supervision is necessary and sufficient.

The Initial Stage of Construction

At the beginning of construction works, New Towns present some very specific and peculiar problems.

Most New Towns have considerable difficulty in attracting population and securing, at the beginning, a minimum number

of families necessary to get the town on the way. If the town has an ambition to become a self-contained community, with its own sources of employment, it probably will have enormous difficulty in attracting industries at the beginning.

Here again, Brasilia is in an advantageous position in comparison with other New Towns. Brazil's New Capital, has not had and, probably will not have much trouble in attracting population. Soon, top governmental officials, military personnel, embassies and legations will move to the New Capital. Newspapers, radio and T.V. stations and many other organizations, will either move or open branches in Brasilia.³⁷

However, the New Capital is very likely to have one serious problem that most New Towns have at the beginning. This problem is the achievement of a balanced initial development, which is, in Brasilia, aggravated by two factors: the high rate of population growth and an unbalanced initial population.

The high rate of growth would make it very difficult for NOVACAP to keep pace with the provision of required services, utilities, social facilities and so on.

³⁷ The latest figures released unofficially, and based on rough estimates, disclose that the present population of Brasilia is around 30,000. This figure is perhaps exaggerated. However, considering the growth between March and July 1957 (about 1,000 persons per month) Brasilia's population is probably not very far from the above-mentioned figure.

A balanced initial development would be deeply affected by the amount of work to be carried out by private enterprise. NOVACAP should carefully study a schedule for releasing land to private developers. Disorderly growth and popular dissatisfaction are likely to occur if private development rushes far ahead of the Corporation's own work.

Brasilia already has, and probably will continue to have for a short period, a very unbalanced population composition. This is typical at the initial stage of most New Towns. Up to now, Brasilia's population has been strikingly unbalanced, as shown by the census figures transcribed here in previous section. There is a disproportionately small amount of women and children. The population to be moved to the New Capital in the coming years will probably present an equally typical cross section. Brasilia is a pioneer city in a frontier area. Families with small children, women and aged would not be willing to face the troubles of moving to Goias.

The New Capital's population will probably continue to be characterized by a small proportion of women, children and aged, and consequently a large proportion of unmarried males.

Population composition should be taken into consideration at the initial construction stage. It should guide the quantity and quality of facilities to be provided. Careful population research is necessary to determine the needs of the first families, in matters such as amount and types of housing, recreation facilities, schools and so on. Up to now, population composition

has not been given enough attention.

Stereotyped formulas are being used in the construction of neighborhood units: for each one thousand persons, a school and playground for so many children, so many two or three bedroom houses (or apartments), regardless of population composition. One of the functions of the Committee recently appointed to study the transfer of governmental personnel was to carry out a research of the dwelling units expected to be ready in Brasilia by 1960, for the housing of relocated families. The new coming population will have to adapt itself to the facilities built, instead of vice versa.

It might be argued that social facilities, housing and services, are not supposed to meet only the requirements of the initial population; that they are permanent facilities, and should be built according to future needs. But many facilities can be planned and built to meet present requirements, with due allowance for future expansion. The more initial facilities are built according to the needs of initial population, the greater the economy will be made at the outset. Facilities could expand progressively as the city develops and as the revenue derived from the city's development increases. New Towns require heavy initial expenditures and any attempt to reduce these expenses should be carefully considered. Proper planning and intensive research are necessary for a progressive construction of a New Town according to the needs of each stage,

and at the same time, with due consideration to future requirements. Such procedure is more preferable than the building of temporary facilities at the beginning, waiting for the proper time to build the permanent ones. In a large number of New Towns, temporary facilities have proved to be the most permanent.

Research should also be carried out to determine the economic conditions of transferred families. These conditions would help to determine the population's needs for commercial services, food supply and the like. They would help to determine where and when to start developing commercial areas, whether in neighborhood centers or in the central business district. A proper balance should be preserved between the amount of commercial land to be released and the population's purchasing power and the amount of residential land.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Despite the fact that Brasilia's construction has already started, the study of New Towns, and the knowledge acquired from such study can still be of a great help to Brasilia's planning and construction. There is still a great deal to be done, and many difficulties and complex problems are likely to arise in the future.

The administrative and financial policies that are being adopted in Brasilia seem to be quite satisfactory. Every effort should be made to show future governments how important is the maintenance of a continuous and stable administrative structure and financial policy.

By contrast, overall planning has presented serious shortcomings. Planning ahead is the most efficient way of reducing future troubles and assuring an orderly development in the city's construction. In order to be ready for dedication by 1960, Brasilia is being built in a hurry, without the guidance of a long range comprehensive plan. Such a plan is probably Brasilia's most urgent need, and should integrate administrative, financial and physical planning, as well as a program for economic development of the Federal District, and the plans for the transfer of the Federal Government. Economic

planning should take in consideration the undeveloped character of the Southeast of the Central Plateau and of the Future Federal District. It cannot be, for the moment, much more than a system of general development policies.

Brasilia's physical plan should not be considered as a straight jacket, which would force the city to be the way the architects want it to be. Although the basic features of the Costa Plan should be respected, it must be remembered that the development of a city is not subject only to the architect's will or even to the will of a planning team. Ways of life, people's habits and needs, economic and ecological forces should not be suffocated by a plan. In short, there must be a reasonable balance between planning theories and the inevitable facts.

Planners, not only in Brazil, but almost everywhere, seem not to be very conscious of the limitations of the effects of their plans on social life. It is not for planners (and probably not for anyone) to say, for instance, that people would be much happier and the city would function better if most of a city's population lived in twenty story apartment buildings, or whatever other type of dwelling it might be. In this respect, the Costa Plan should be carefully watched so as to see to what extent Brasilia (and especially its residential areas) are being built to satisfy the people or the architects and planners.

Brazilian sociologists should fully participate in, and study the development of Brasilia, and investigate the relation

between the planning principles that are being applied and their social consequences. Unfortunately sociologists have had very little participation in urban planning and not many social studies have been made about New Towns.³⁸ Consequently, in the absence of sociologists, planners seem to have invaded the urban social field.

In another aspect, besides the problem of planning ahead, Brazilian planners seem not to have given enough attention to the future. This aspect is the ownership of land. This is mainly a problem of governmental policy, but it is apparent that planners are either not fully aware of its importance, or are not sufficiently debating the issue.

One of the important conclusions of this dissertation is that the experience in the planning and building of New Towns shows that there are a few basic points on which the success of Brasilia would be strongly dependent. These points are: the existence of an agency with the only and sole function of administering planning and construction; the amount of power and independence given to the agency; the degree of governmental interference and the effects of changes in government; financial and administrative stability; the existence of a long range comprehensive plan integrating the different aspects of the city's

³⁸ One of the few and excellent of such studies is: Orlans, Harold, Stevenage: A Sociological Study of a New Town, London, Routledge & Paul, 1952, in which the author strongly questions the validity of the social aspects of some modern town planning principles.

construction; and the relationships between the transfer of government and the construction of the city.

These points would be worth careful attention on the part of Brazilian planners and on the part of the Brazilian Government.

BIBLIOGRAPHY

Backheuser, Everardo, "Localização da Nova Capital: Critérios de Escolha", Boletim Geográfico, No. 57, December 1947, p. 967.

Basildon Development Corporation, Basildon New Town. An introduction to the Draft Master Plan, Pitsea, Essex, The Corporation, 1950.

Basildon Development Corporation, Eighth Annual Report for the Period Ended March 31st 1957, London, Her Majesty's Stationery Office, 1957.

British Caribbean Federal Capital Commission, Report of the British Caribbean Federal Capital Commission, London, Her Majesty's Stationery Office, 1956.

"Business Builds a City", Architectural Forum, June 1954, p. 147.

Caemmerer, Paul H, Manual on the Origin and Development of Washington, Washington, United States Government Printing Office, 1939.

Cruls, Luiz, Planalto Central do Brasil, Livraria José Olympio Editora, 3rd ed. Rio de Janeiro, 1957.

Demostenes, M, Estudos Sobre a Nova Capital do Brasil, Livraria Agir Editora, Rio de Janeiro, 1947.

Donald J. Belcher & Associates, Inc., O Relatório Técnico Sobre a Nova Capital da República, 2nd ed. Rio de Janeiro, Departamento Administrativo do Serviço Público, 1956.

Duncan, Otis Dudley, "The Optimum Size of Cities", in Reader in Urban Sociology, Paul K. Hatt and Albert J. Reiss Jr. editors, Glencoe, Ill., The Free Press, 1951.

"Federal Capital of Australia", Town Planning Review, Vol. III No. 4, January 1913, p. 221.

Form, William H., "Status Stratification in a Planned Community" American Sociological Review, Vol. X, 1945, p. 605.

Fry, Maxwell, "India: Housing in Chandigarh, Pundjab's New Capital", News Sheet of the International Federation of Housing and Town Planning, No. 39, February 1956, p. 38.

Geer, David S. "Oak Ridge: A World War II New Town", Journal of the American Institute of Architects, Vol. XV, No. 1, p. 16.

Great Britain Laws, Statutes, etc. New Towns Act 1946, London, His Majesty's Stationery Office, 1946.

"Growing Pains of a Brand New City", Saturday Evening Post, August 7, 1954.

Harlow Development Corporation, Harlow New Town: Master Plan, 2nd ed. Harlow, the Corporation, 1952.

Harrison, Peter, "Planning in the Commonwealth...Aft Agley: The Development of Canberra." Journal of the Town Planning Institute, Vol. XLIII, No. 9, September-October 1957, p. 235.

Hatfield Development Corporation, Hatfield New Town, Hatfield, The Corporation, 1952.

Holford, Sir William, "British New Towns Planning", Journal of the American Institute of Architects, January 1951, Vol. XV, No. 1, p. 46.

Holford, Sir William, "Brasilia: A New Capital City for Brazil," Architectural Review, Vol. CXXII, No. 731, December 1957, p. 394

"Industry Builds Kitimat: First Complete New Town in North America", Architectural Forum, July 1954, Vol. CI, No. 1, p. 128.

"Industry Builds Kitimat: America's New Town Prototype" Architectural Forum, August 1954, Vol. CI, No. 3, p. 121, and October 1954, Vol. CI, No. 4, p. 162.

Instituto Brasileiro de Geografia e Estatística, Enciclopedia dos Municípios Brasileiros, Rio de Janeiro, The Institute, Vol. II, 1957.

James, Preston, "The Problems of Brazil's Capital City", Geographical Review, Vol. XLVI, No. 3, July 1956, p. 301.

Kent, Hollister, Vera Cruz: Brazil's New Federal Capital unpublished Ph. D. thesis, Cornell University, 1956.

Koenigsberger, Otto H., "New Towns in India" The Town Planning Review, No. 23, 1952-53, p. 95.

Le Corbusier, Oeuvre Complète 1946-52, Zurich, Girsverger, 1953.

Mayer, Alber, "The New Capital of the Pundjab", address before Convention Symposium I, Urban and Regional Planning, The American Institute of Architects, Washington D. C. May 10, 1950. Mimeographed.

Meltzer, Jack, "Administrative Problems of New Towns", a speech delivered at the 1952 National Planning conference of the American Society of Planning Officials, Boston, October 5-8, Mimeographed.

New Towns Committee, Interim Report of the New Towns Committee, London, His Majesty's Stationery Office, 1946, Cmd. 6759.

New Towns Committee; Second Interim Report of the New Towns Committee, London, His Majesty's Stationery Office, 1946, Cmd. 6794.

New Towns Committee, Final Report of the New Towns Committee, London, His Majesty's Stationery Office, 1946, Cmd. 6876.

New Towns Development Corporation, Reports of the Cunbernauld, East Killbridge and Glenrothes Development Corporations for the Period Ended 31st March 1957, Edinburgh, Her Majesty's Stationery Office, 1957.

New Towns Development Corporations, Reports of the Aycliffe, Basildon, Bracknell, Corby, Crawley, Cwmbran, Harlow, Hemel Hempstead, Peterlee, Stevenage, Welwyn Garden City, & Hatfield Development Corporations for the Period ending 31st March, 1951, London, His Majesty's Stationery Office, 1951.

"New City Rising in West Australia" News Sheet of the International Federation of Housing and Town Planning, No. 35, February 1955.

"New Towns" Architectural Forum, November 1951, Vol. VC, No. 5, p. 136.

"Nouvelles Villes" Urbanisme, Paris, year 22, No. 25-26.

Orlans, Harold, Stevenage: A Sociological Study of a New Town, London, Routledge & Paul, 1952.

Purdon, Charles Benjamin, The Building of Satellite Towns, London J. M. Dent & Sons Ltd. 1949.

Perkins, G. Holmes, and Creighton, Roger L. "The Design of New Towns," Journal of the American Institute of Architects, January 1951, Vol. XV, No. 1, p. 20.

Perkins, G. Holmes, "New Towns for America's Peace Time Needs", Journal of the American Institute of Architects, Vol. XV, No. 1, p. 11.

Prentice, R. J. "A Scot's Impressions of London's New Towns", News Sheet of the International Federation of Housing and Town Planning, No. 35, February 1955, p. 34.

Resettlement Administration, Greenbelt Cities: A Demonstration in Suburban Planning, Washington, United States Government Printing Office, September 1936.

Report from the Select Commission Appointed to Inquire into and Report upon the Development of Canberra, Commonwealth Government Printer, 1955.

Rodwin, Lloyd, British New Towns Policy, Cambridge, Mass. Harvard University Press, 1956.

Rodwin, Lloyd, "Some Problems of the British New Towns", "Land Economics", Vol. XXIX, No. 4, November 1953.

Rodwin, Lloyd, "Measuring Housing Needs in Underdeveloped Countries" News Sheet of the International Federation of Housing and Town Planning, No. 33, August 1954, p. 8.

Ruellan, F., Quelques Problèmes de L'Expédition Chargée de Trouver des Sites pour la Nouvelle Capitale Fédérale des Etats-Unis du Brésil, Bulletin de L'Association des Geographes Français, Paris, 1948.

Shaw, Sam, and Henderson, Harry, "City to Order" Collier's Magazine, February 14, 1948, p. 16.

Silveira, Peixoto da, A Nova Capital, Rio de Janeiro, Irmãos Pongetti Editores, 1957.

Solari, Alejandro, "La Nueva Capital del Brasil" "Vivienda Y Planeamiento", Washington, Pan American Union, July-August, 1955.

Stein, Clarence S., Toward New Towns for America, New York, Reinhold, 1957.

"The Administration of New Towns" "The Municipal Journal", Vol. LXV, No. 3, 365 August 16, 1957, p. 1715.

"The Federal Capital for the Commonwealth of Australia", Town Planning Review, Vol. III, No. 3, October 1912, p. 165.

Undergraduate Senior Architectural Students of Georgia Institute of Technology, Architecture Course 401. An Introduction to New Town Development and Design, May 1951, Mimeo-graphed

United Nations, Economic Survey of Latin America, New York, United Nations, 1957.

United Nations, Report on the World Social Situation, New York, United Nations, 1957.

United Nations, Urban Land Problems and Policies, New York, United Nations, Bulletin No. 7, 1953.

United Nations, Financing of Housing and Community Improvement Programmes, New York, United Nations, 1957.

Urbanism Committee, Urban Planning and Land Policies; Supplementary Report of the Urbanism Committee to the National Resources Committee, Washington, United States Government Printing Office, 1939, Vol. II

White, H. L., editor, Canberra: A Nation's Capital, Sydney, Angus and Robertson, 1954.

White, L. E. "New Towns: Their Challenge and Opportunity", London, National Council of Social Service, 1951.

Walker, Robert A., The Planning Function of Urban Government, Chicago, The University of Chicago Press, 2nd, ed. 1951.

Waibel, Leo, "Uma Viagem de Reconhecimento ao Sul de Goias" Revista Brasileira de Geografia, No. 3, July-September, 1947, p. 313.

"What Le Corbu Has Been Up To: Building an Entire New City in India", Chandigarh, Architectural Forum, September, 1953, p. 143.

Wheaton, William L. C. and Wegner, Robert L., "The Economic Feasibility of New Towns" Journal of the American Institute of Architects, Vol. XV, No. 1, p. 36.

Wolfe, M. R. Urbanization and a New Town in the Columbia Basin, The Town Planning Review, Vol. XXVIII, No. 92, July, 1957, p. 111.

/ Almost every issue of Town and Country Planning, published by the Town and Country Planning Association, London, has articles about New Towns, either in England or abroad. The January issue of each year is dedicated to a review of the British New Towns during the preceding year.